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ABSTRACT

This monograph contains the conference proceedings of the 1991 conference of the Society for the Advancement of Gifted Education, held in Calgary, Alberta. The papers have the following titles and authors: "Experiencing Creativity in Music" (Loretta Baker); "Students Who are Hearing Impaired and Gifted: Teachers' Perspectives" (Mary Ann Bibby); "You've Come to the Library to Learn About Dinosaurs...But I'm Here to Teach You About Research" (Elaine Blakey); "Computers and Telecommunications in the Elementary School" (Gloria Cathcart); "Mentorship: How and For Whom?" (Don Green); "Integrated Activities for Classroom Enrichment" (Cledwyn Haydn-Jones); "Beyond Reference Skills and Report Writing--Facilitating the Gifted Learner's Investigation of Real Problems" (Jo-Anne Koch); "Mentorship on Action" (Stephen Leppard); "Gifted Females: A Dilemma" (Judy Lupart); "The Artifact Exchange Network Session" (Marilyn Macyk and Bonnie Lebowitz); "Facilitation of Emotional Expression in Gifted Students" (Sal Mendaglio); "Panel Discussion-Programming for High Achievers: Administrators' Point of View" (Keith Muirhead); "Creative Writing Ideas" (Mary-Ellen Perley); "Teaching the Scientifically Talented" (G. Harold Poelzer); "Research Developments in Gifted Education" (Michael C. Pyryt); "Intuition and Giftedness" (Deborah Skaret); "Sex Role Orientation and Self-Concept in Gifted Adolescents" (Josie Tong); "Strategies Developed for Use with Elementary Gifted/Learning Disabled Students in a Self-Contained Classroom" (Janet Wees); "We Believe in Honoring Human Potential" (Marie Whelan); "Writing to Publish: Breaking the Barrier" (Carolyn Yewchuk). (DB)

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CONFERENCE PROCEEDINGS

2nd Annual Conference
September 26-28, 1991
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The Society For The Advancement of Gifted Education

CHOICES FOR CHALLENGE

CONFERENCE PROCEEDINGS

SAGE 1991
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SAGE 1991
CONFERENCE PROCEEDINGS

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Experiencing Creativity in Music

Loretta Baker

Perhaps you are one of the teachers who are wondering what all that tapping and clapping is about in the music room at your school. Do the children come to challenge class excited about the Christmas play or the school concert? Would you like to find out what it is about music that attracts the creative children and about the skills they need to create music ? If you have come to find out the answers to these questions ; your in the right session.

Let's look at some vital reasons for including music as a necessary subject in your children's school life. First, there are aesthetic considerations. Goethe said, "A man should hear a little music, read a little poetry, and see a fine picture every day of his life, in order that worldly cares may not obliterate the sense of the beautiful which God has implanted in the human soul." The study of music is not a frill but an essential to improve the quality of life for every human.

We must depend upon creative and imaginative solutions to vital problems. When taught in a meaningful way, music is particularly suited not only to bring about greater artistic understanding but to encourage innovative and experimentive thinking.Through music, the child can have the happy experience of learning to express himself. Although we hear discussions about cognitive and affective learning, studies of young children, especially gifted and culturally deprived, have shown that these aspects of learning are inextricably intertwined.

Creativity

JAQUES-DALCROZE. Movement is the first level of creativity. Movement is encouraged from the beginning, but must always be specific to the meter, rhythm, character, tempo, dynamics, and flow of the song, percussion, or piano accompaniment. There are "right" and "wrong" movement styles to accompaniments. Improvisation is expected to be thoughtful and appropriate. The philosophy of thoughtful musical improvisation is carried into classes in *Solfège* and *Solfège-Rythmique*, and to vocal, instrumental, and piano experiences

KODÁLY. Creativity comes from knowledge. It is necessary to have a musical vocabulary in order to create music. Just as one must know words to state thoughts, so must one know the vocabulary of music aurally and orally before improvising; just as one must be able to think and write words, phrases, and sentences before expressing thoughts on paper, so must one be able to hear, think, and write notes and know how to organize them into patterns, phrases, and forms in order to compose.

ORFF. In order to create sound patterns it is not necessary to know notation. Sound patterns may be constructed arbitrarily and then organized into forms to create compositions. The musical vocabulary is gained aurally. The principle of "improvisation unfettered by knowledge" is upheld until very late in the process.

COMPREHENSIVE MUSICIANSHIP. Composition need not begin with the traditional materials of music. Environmental sounds or "found" sound sources may be organized into forms to produce spontaneous improvisations. These may or may not be charted in invented graphic notation so that they may be read later (thus becoming compositions). Traditional reading and writing, while desirable skills, are not necessary for improvisation and composition.

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Tiny Tree Wrap

You're punny! You're small! You're not even tall!
You could never be a Christmas tree at all!
You're tiny! It's true! You'll just never do!
Santa Claus would never pick a tree like you!
Oh, no, no, no!
No way at all!
Oh, no, no, no!
You're just too small!

Suggestions for Performance

- Three four beat measures and one three beat measure for introduction.
- A constant beat -four per measure- is essential. The best and easiest to maintain is clapping or patsching .
- Once the beat is established you can elaborate in any number of ways. Experiment with the different types of sounds your students can make with their hands, feet fingers. Ask them to imitate things: a cymbal, a bass drum, a train, a needle scraping a record, a squeaking door, wind noises with their mouth. Imaginations can go wild . Decide which sounds to use and stick to them for all rehearsals.
- Keep your singers and your rhythm section separate.
- After the words, "O, no no no!" a rhythm break begins . At this point the rhythm becomes the focus. Keep the four beats going under the other sound effects.

The Rap of the Presents

Ev'ryone goes shopping when it's almost Christmas day.
They buy lots and lots of presents that they wrap and give away.
The best part of Christmas if you really want to know , are presents that are wrapped with lots of ribbons and bows.
R-R-R-Ribbons and bows! Put them in some boxes!
Stick them in some bags! Wrap them with some paper, and mark them with some tags!
R-R-R-Ribbons and bows will make them pretty you see.
Then they will look real fine underneath the Christmas tree!

READING RAP BY GRADE TWO STUDENTS FROM LEE RIDGE SCHOOL

We have a little Rap for you today
We want to tell you books are here to stay
We think you should know that books are cool
So read at home and read at school
Read with a friend or read by yourself
Books from your room or books from the shelf
We never forget the number one rule
Books are cool at Lee Ridge School

To maintain the steady beat keep time by patsch and clap.

RONDO

This form is like a musical sandwich: first the bread, which is always the same; next a filling, which is different from the bread; then another piece of bread, then another different filling, and so on, until it is large enough.

Children will understand the form very easily if it is presented to them in this way.

The form is A (bread), B (filling), A (bread), C (different filling), A (bread), and so on.

Build it up like a sandwich.

bread A
filling D
bread A
filling C
bread A
filling B
bread A

"A" can be a rhythmic pattern clapped, snapped, or stamped by most of the children:

It can also be a movement pattern, a short song or poem, or even a short instrument phrase, but it should be the same each time it repeats.

"B," "C," and "D" are created in turn by different children clapping, stamping, singing, or playing a pattern of their own devising. The whole piece can be accompanied, have an introduction and ending devised for it, and can be developed into a small composition in the same manner as that described in "Question and Answer" (see above).

The following are some examples.

Use a Short Poem for the "A" Section

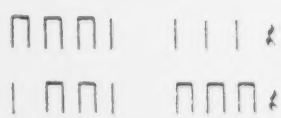
A. 1, 2, 3,
Johnny caught a flea.
Flea died, Johnny cried.
Tee, hee, hee!

The class says the poem and does a "pat, clap pat clap" pattern as an accompaniment.

B. One child creates a pattern on a drum

A. The whole class repeats the poem

C. A second child creates a pattern on a wood block

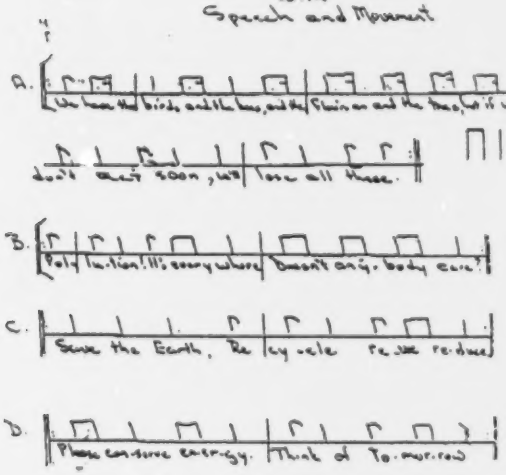


A. The whole class repeats the poem

Add as many sections as you wish but always end with the "A" pat

Speech

Sib '91 Environment Rondo with Speech and Movement



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Students Who Are Hearing Impaired And Gifted: Teachers' Perspectives

Mary Ann Bibby

In this session I would like to share with you some some thoughts from trained teachers of the hearing impaired. Several years ago, my colleague, Carolyn Yewchuk, and I did a study which identified hearing impaired students who were also gifted. Canada does not have in place any special programming for these students, although we can assume from our research that between 4 and 6 percent of this population will be gifted (Yewchuk and Bibby, 1989). In informal discussions, teachers of the deaf and hard-of-hearing never hesitated when asked to talk about students they thought to be gifted. As with hearing students, it is possible to establish formal identification procedures for hearing impaired students,(Yewchuk and Bibby, 1989) but informally, teachers already seem to know who these students are.

Students who have impaired hearing form a minority group in any public school. Often, these children are integrated and many times they are the only student in the school. In other instances, small groups of between 4 and 8 students stay together as a self-contained class, and work with a trained teacher of the deaf. These teachers work in various settings: in the public schools, in special pre-schools and in schools for the deaf. They are also trained as itinerants and consultants.

Using traditional qualitative research procedures (Berg, 1989; Lincoln & Guba, 1985) I interviewed 14 teachers working in Vancouver, Edmonton, Toronto and Amherst. After the transcription of each interview, the teachers had opportunities to read the protocols and to make changes, to talk with me again, and to provide clarification and to assist with identifying key points. The teachers perspectives are important, for they see these students on a daily basis; their informed knowledge grows out of these continuing interactions with their students. These trained teachers of the deaf, indicate that in working with gifted hearing impaired students, there are unique aspects that must be taken into consideration.

Since the words of the participants in this study are keys to our eventual understanding of these students, and to the meaning of giftedness for those who have impaired hearing, this paper simply allows the teachers to speak for themselves. In the presentation of this paper in this conference, I would like to encourage discussion and questions as we read the teachers' thoughts. I have taken the liberty of using headings in order to cluster the quotes. Let me start by introducing you to three gifted students.

> **Jenny is gifted. She is at the top of her class with an average that is 95 percent in Grade 9. Jenny especially excels in the sciences, and her teachers describe her as being a quick thinker who easily grasps new concepts. She is creative, has a variety of interests and is highly regarded by both teachers and classmates. Since she was 9, she has dreamed of being a doctor. The school counsellor, in consultation with her parents and teachers, however, decide that Jenny needs to come to terms with reality, and they arrange for her to talk with the Dean of Medicine. It will be extremely difficult for Jenny to reach her goal. How can Jenny ever pass her stint in the operating room if she can never hear what is being said? Jenny is profoundly deaf.**

Andrew is gifted. He is a creative writer and artist and his cartoons are among the best of new young Canadian talent. He has just graduated from a University in the U.S., and has returned to Vancouver to look for work. As he goes from interview to interview, he faces many challenges. Employers are unfamiliar with his situation. His first language is American Sign Language and he uses an interpreter at all times. His speech is almost totally unintelligible. Employers are reluctant to take the chance with something they know nothing about: -deafness. Andrew has a profound hearing loss.

Sandi is gifted. Throughout high school, her teachers saw her as an extremely hard worker, always obtaining advance information from them about what was happening in her classes; always searching out more information and always studying several hours a night. She was extremely motivated to do well, and her grades showed the results of her efforts. Her teacher called her a hard worker, not necessarily gifted. But last year, Sandi entered her 4th year of University in the Arts Faculty, and is the top student in the Department of Philosophy. Sandi has a profound hearing loss.

THE TEACHERS' VOICES

1: Teacher's Knowledge: Trusting themselves

"I don't know if she's gifted, but I KNOW she is gifted."

"Well, I know that Sam is definitely gifted. But what does that really mean? I guess out there, there is some kind of formalized definition but I'm not sure that I know what that is. All I really know is that when I see Sammy, he just stands out; he is head and shoulders above the rest."

" I know my students. When there are so few of them in my class and I see them every day, then you really develop an intimate knowledge of what they are capable of doing, who they are etc. I suppose that is harder to do if you have 30 kids in a class, but with 7 it makes it easier. "

"I know about Sue, I am getting to know how she thinks and learns and I plan for her better and better every day. She is certainly gifted, the way she thinks and how she does things; and also, her achievement shows me that too. But I don't know if she's gifted according to other criteria. She certainly is according to mine. I don't need to have her tested, but I'm sure if I did then it would only prove me right. I don't really need to do that. It wouldn't give me any more useful information. "

2: Teachers' Knowledge: Comparing Students

"He's certainly at the top of his group of deaf peers at the school, but even thinking about hearing students his age, I guess that he would stand out. He's just so quick and his thinking is so creative"

"Well I compare them to the other kids in the school who are hearing, and they certainly are holding their own. She is making top marks in science and math and I keep forgetting that she has a hearing loss; in fact, I don't think she can really hear anything that is being said. But she is competing with the others in her class and doing better than most. She's great!"

"He is probably the best student I've ever worked with at the school for the deaf. He is a one trial learner; you just present the information one time and he's got it and uses it again in other situations. So he's tops here, but I suspect that he would also be tops if he were with hearing students; gosh, at some things he is even a lot faster than me!"

" I know they say that when you identify handicapped kids who are also gifted, you should compare them with your peers. But I think with deaf students it is different. I mean I know that the deaf students who I know are gifted are also gifted when you compare them to hearing kids. Maybe their communications skills are different but at some levels they are really able do just as well, sometimes better than a lot of kids with hearing!"

3: Teachers' Knowledge: Kinds of Giftedness

" This child is just three, has no speech, can't talk, but somehow he just knows how to make his needs known in other ways. He can't stand not to know; He has a very low tolerance for ambiguity. But this communication thing he has developed somehow. No one taught him; he's just wired for communication"

"I knew this one child who was just so gifted at speechreading. You know how hard that is; you can't get very much information by just reading people's lips and when you think of people with mustaches, or teachers who talk when they turn their heads to the blackboard. Well you know, But this one child was so gifted. I just do not understand how he was able to fill in all the missing information. Even when he was watching t.v. he was able to understand a lot of the language. Don't ask me how! I'll never know. But that is one extraordinary gift!"

"I don't believe that this student really has a terrifically high IQ. But I have never in my life seen anyone who wants to succeed as much as he does. He wants to know and to understand and he will work extremely hard for what he wants. I think his gift is his motivation! And in this world, where deafness isn't really understood, he will go a long way because of it. "

4: Teachers' Knowledge: Masking Giftedness

" Maybe some kids aren't gifted, or you haven't found out what they're gifted in!"

" Sometimes students show things to some people that they don't show to others. So maybe you haven't seen it because the child is reluctant to show you, or maybe she just hasn't had a chance."

"I taught her in Grade 10 and she was always a very good student. I had 6 other students who had hearing losses and they were in the public school. Janene worked really hard and even took some International Baccalaureate courses and did well in them. But in high school I would never have called her gifted, not at that time. A hard worker maybe. But you know, she has gone to University and is at the top of her class..with a profound hearing loss. Maybe she is gifted!"

"She is really brilliant and has a wonderful mind but it's sad; her English writing skills are not very good and she has a hard time writing in English. Now, expressing herself in American Sign Language she is just terrific. But she has to work and live in our English world. So what's she going to do with her giftedness??"

5. Teachers' Knowledge: Being Amazed

"She just has that seed, that magic! How does she do it??"

" You know how important it is for these kids to have lots of terrific support as soon as they are diagnosed; well, Jamie, he has had such a deprived family background that you would never think that he could develop his potential even if he had hearing. But that kid! I just can't believe it. He has overcome all the odds and is emotionally in great shape and also leading his class!"

"Where are these kids getting it? I just sit down and talk to these kids and I sit back and think, where did that come from? Where did that thought come from? This child was talking politics when he was 7 years old, in a knowledgeable way,; he even challenged me! So I have to remind myself, this child is gifted but he is also profoundly deaf. He doesn't have any useable hearing and the family did not even have a captioned television at home. So he has been deaf since birth. How did he pick up that information??"

6. Teachers' Knowledge: Labelling

"Well you know, when I was a child, there were kids in our class who were called gifted. I thought it was so unfair. Some of us just hadn't developed to our potential yet, and besides, those kids were always the ones that got the special extras in learning. I would love to have been involved in some of those projects!"

"I know that Marion is gifted but you must remember that I have 6 other hearing impaired students in my class. Each one of those students has unique needs and if I were to label her, them she really stands out. That is just not a good thing when you are dealing with small classes. You want everyone to work together and labeling serves no useful purpose. Of course the others know that she is really outstanding at some things, but somehow the label makes it official and they don't really appreciate that."

"so they decided to call her a genius (when she was 10 years old) and it has been a very difficult label for her to live up to. People say 'she's so brilliant! It's too bad she doesn't have good speech!' But the thing is, somehow she gets the idea that she should not

ask for help, and that she must be able to do everything on her own. She also has said that even though she is brilliant, she is still never as good as hearing people because of the differences in communication. What a difficult thing for her to have to deal with!"

"You know, people know, people know each other and we know what, how we feel about each other and where we see that person's strengths. But what I see as one student's strengths another teacher may not see; the students may not show that teacher that strength. So its very important we stay multi-dimensional and I think that labelling makes us cardboard figures, it makes us uni-dimensional and we stop. When we put a label on something, we stop thinking about it and reacting to it."

7. Teachers' Knowledge: The Impact of Hearing Loss

"This student is so bright, he is so far beyond me that I think sometimes I can't help him. It's just there. And the insight he has into things is incredible. But you know, there's a price to pay . He's left on the periphery of everything. Remember, deaf people who are also gifted are in a double-minority group. I mean, there are not a lot of kids who can do the same things as he can so there, he is a loner. Hearing kids who are gifted at least have more peers to choose from, more hearing friends around them who are more like them. But there are only about 15 kids his own age in this school, and he is not as interested in some of the things that they are doing. His needs are different. Then when he gets with hearing gifted kids, he is different again, because they can't understand his deafness and the communication factors that make it difficult for him. So he doesn't really belong in the hearing world because he is deaf, and then he doesn't really fit into the gifted peers world because he is hearing impaired. Talk about not belonging! It must be so hard!"

"My daughter, Trisha, just graduated from public high school. I am a teacher at the school for the deaf and Trisha has done really well, though at times we didn't know if it was the right thing for her to be integrated into the hearing school. She seemed happy though, and was always doing well, but never at the top of her class. But you know, she is exhausted. She never found that an interpreter could really help her so all day long, she had to watch the teachers. Of course when she looked away she missed what they said and she had notetakers to help too. But she must be so tired. And at times she said to me : 'you know, for all the hard work I do, and for all the time I spend studying, I'm still not at the top. I guess being gifted and hearing impaired sometimes means being just average. Because in the real world you are still competing with hearing people. But that is so hard to take!' Trisha has decided to take a year off this year. I think she deserves it!"

REFERENCES:

Berg, B.L. *Qualitative Research Methods*. Boston, Mass.: Allyn & Bacon, 1989.

Lincoln, Y.S. & E.G. Guba. *Naturalistic Inquiry*. San Mateo, Calif.: Sage Publishing. 1985.

Yewchuk, C. and M.A. Bibby. "Identification of giftedness in severely and profoundly hearing impaired students." *The Roeper Review* 12, no.1 (September, 1989): 42-48

You've Come To The Library To Learn About Dinosaurs... But I'm Here To Teach You About Research

Elaine Blakey

(Revised from article submitted to LRC Journal, June, 1990)

"You've come to the library to learn about dinosaurs," I told the class of third graders sitting in front of me, "but I am going to teach you something else. I always teach the same thing," I told the group. "It doesn't matter what you come to learn. I always teach kids how to do research."

Every unit I teach is basically the same. The trimmings change to reflect the level of child development, the teacher selected content, and the product to be produced but the basic process doesn't change.

Goodlad has lamented that one of the problems with schools is that they stress product, not process. Teaching content is not enough. If you want children to learn something, you must point out to them that you are teaching that something to them. If I want the students to someday understand and accept the Research Process as a portable strategy that can be carried from subject to subject, I must make them aware of the steps to follow when doing research. They must see its structure or they won't be able to transfer it to other research tasks.

It is not enough to take students through the steps of the research process. We need to spend an equivalent amount of time delineating the process that we are teaching so they can see it as well. Each step must be made clear to students. Transfer occurs only when structure is perceived in one situation and the same pattern or framework is recognized in a new situation.

Focus on Research presents a process for research in five steps: Planning, Information Retrieval, Information Processing, Information Sharing and Evaluation.

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In the Planning step students need assistance to make decisions about what they know and what they want to find out. They should be given as much autonomy as is appropriate for their age and skill development to select topics, determine presentation formats and identify the audience for the finished work. During the Information Retrieval step students work to identify the best sources of information, again as appropriate to their level of development. The Information Processing step includes choosing and evaluating relevant information, organizing and recording that information, making connections and inference with already known information, creating a product and revising and editing it until it is ready for presentation. Information Sharing includes the dual aspects of presenting information, that of the presenter and that of the audience. Evaluation involves, not only teacher evaluation of the student's work but also self and peer evaluation of both the process of research and the product the student has completed.

Metacognition involves being aware of and in control of your thinking. In order for students to see the structure of the research process, they must develop a metacognitive process that encourages them to look at their learning; to observe it in small pieces; to generalize from their personal feelings and actions what is important for them to remember; and to identify what they can apply in future learning situations.

One way to help students focus on the structure of the research process as it happens is to have them keep a journal as they progress through the research project. The journal should be a journal of process, recording feelings and activities and thoughts. It should focus on what was done and felt, not on what was learned about the topic studied. Students should record steps they followed, problems they encountered, feelings and other reactions they observed in themselves as they progressed through the process.

Students, like all of us, know things first with their feelings. A student may be excited and curious as she starts to select and narrow a topic. She may feel frustrated or satisfied as she applies her retrieval skills to locate the information she needs. She can become irritated, discouraged, and anxious as she struggles to find the details needed to complete the web about her topic. She may be relieved and confident again as the bits of information finally add up to enough. Feelings of frustration may arise once again as she begins to create a product to

show what she has learned. Finally, relief, satisfaction, pride, success, and joy may come to her when the job is finished.

Besides chronicling these feelings, the journal should also be used to record activities that are part of the Research process. Discussion occurred, arguments erupted, work was neat or messy, group work was successful or stressful. Recording and analyzing feelings and the activities that produced them can help students to learn much about themselves and their abilities to apply the Research Process.

Another way to focus student attention on feelings and experiences is brainstorm remembered feelings and activities of a shared experience. From this list of feelings and activities each student can generalize what he/she learned and select what he/she can apply to his/her own repertoire of research skills.

Yet another way is to show the framework of a process is to have the teacher think out loud about how he/she would approach a particular task, modelling the behaviour students might follow and outlining the steps that are part of the process. In order to become aware of their thinking students require vocabulary to label thinking skills and be able to recognize when these skills are used by themselves and by others.

Ongoing evaluation provides another opportunity to focus on the process Observation checklists make it easier to tell if students are working through a step completely. Focussing on the positive, announcing the particular behaviour you will be marking on your checklist that day, using T charts to help students clarify what that behaviour looks like and sounds like will encourage it to happen. Using student behaviour as a 'good example' of what you are looking for also focuses attention on your expectations. Evaluation of rough work can help students to clarify the steps followed as he/she goes through planning, retrieval and processing.

Feedback to students is also important if they are to become aware of what steps they are following as they complete their research. When you see a behaviour that fits in with the process, point it out to the individual, label it for him/her so

he/she can tell where and how it fits into the structure and otherwise let him/her know you are pleased to 'catch him/her' doing it.

Assist students in becoming familiar with the Research Process by hanging a chart that outlines the steps where students can see it as they work. Point out, and ask them to point out, the steps at which they are working as they proceed from Planning to Sharing and Evaluation. Review steps already completed and anticipate the ones to come. Ask them to tell you what happens in each of the steps as they work through it.

Encourage students to see the framework of research b connecting one research activity to the next. Point out similarities ("Remember when we brainstormed what we knew about space. Today we are going to do the same thing. We are going to brainstorm what we know about dinosaurs.") and differences ("The last time we did research we took notes with a retrieval chart. This time we will make a web to gather details about our topic.") Emphasize that each research project follows the same general pattern.

Every day, in every way you can, show the structure of the research process to your students. Then, one day, when you are ready to start them off on yet another research project, you'll hear them say, "Oh, I know how to do research. We did it when we studied dinosaurs. First you...." And you can smile and say to yourself, "By gosh, I think they've got it!"

Computers and Telecommunications in the Elementary School

Gloria Cathcart

Background

Malmo Apple Centre for Innovation

Malmo Apple Centre for Innovation (ACI) has been operational since September 1987. "Elementary School Integration of the Microcomputer into the Curriculum," a project directed by Mrs. Gloria Cathcart, was awarded a configuration of Apple IIgs microcomputers and some Apple software by the Apple Canada Education Foundation (ACEF). Mrs. Cathcart serves as project director, grade 3/4 teacher in the project classroom, and the author of materials used in the project.

Malmo currently has two Apple IIgs networked classrooms that server four classes of grade 3 and 4 students, and is in the progess of installing 32 Mac Classsics on a file server for use by grade 5 and 6 students. There are computers in all classrooms in the school, and a cluster of computers in the library.

Purpose

> *I like the computers because it's a lot easier than using a pencil and paper. And if you make a mistake on paper it might be a lot harder to correct than on a computer. The grade three room has lots of neat furniture. It looks a lot better than just having plain old desks.*
>
> --Damien Jaipaul

> *I like computers because they help you work faster and it is a lot neater. I like computers because your hands don't hurt as much as when you use a pencil.*
>
> --Emma Braim

What happens in a classroom where students have continual access to computers and truly integrate the computer into the curriculum? Providing a working model of a computer integrated classroom, not another school computer lab, is the purpose of the project.

Furniture, Hardware, and Software

Furniture especially appropriate for cooperative learning activities and designed to accommodate young students was built. Seven octagon-shaped tables, each with four wings, were constructed in three sizes. The central table provides book storage space and a work area for students. A wing to the left of each student houses the computer, the disk drives, and a pull out shelf for the keyboard. Electrical and network cords are all concealed within the furniture. Only the monitor is located on top, making the student the focus of the classroom.

Prior to the introduction of the project, Malmo was a school of under 200 students with 6 computers and a printer. Now as we begin our fifth year of the project, Malmo has 320 in-school students, 101 computers (49 of these are Macintosh), ten printers (two are Laser printers), a local area network , two modems, CD-ROM and Laser Disk Players, and a very active, integrated computer program.

AppleWorks, *PaintWorks Plus*, and *MECC Software* are the most frequently used programs on the Apple IIgs computers. *Microsoft Works*, *AppleLink*, and *HyperCard* are being used as we install the Mac Classrooms. This will be expanded later.

Making the Computer an Effective Tool

Without the ability to touch type, it is hard to imagine trying to use the computer as a writing tool. Teaching keyboarding requires an informed, enthusiastic, understanding teacher, regular access to computer equipment, appropriate furniture, a fairly large block of time, a keyboarding program designed for the young student, and a purpose for learning. The teacher is the key to success.

The Keyboarding Program and Using the Computer as a Writing Tool

> *Keyboarding is easier than going one finger at a time and you don't have to sharpen your pencil. I can type better than my dad.*
>
> --Jacinda Duquette

> *I like storywriting because we can use quotation marks. Also the computer is a faster way to write. I like writing paragraphs. I also like writing whatever length of paragraphs I want!*
>
> --Naomi Mathison

A keyboarding program based on teacher directed lessons, not a keyboarding software package, is used in the ACI. The students work within the word processing package (*AppleWorks* in our case, although any word processor would be fine) while the teacher instructs and encourages. A text for keyboarding has been designed for our young students. Larger print, shorter line length, and reasonable spacing of lines, all for easier visual tracking, are some of the ways this material differs from the conventional typewriting manuals. A focus on language arts concepts and a smooth transition from keyboarding to composing at the computer is also included. (*Are You Ready? Elementary Keyboarding* by Ubelacker and Cathcart, ISBN 07-549768-9 from McGraw-Hill Ryerson, 300 Water Street, Witby, Ontario, L1N 9B6)

Once the alphabetic keys had been introduced, including the shift keys, and children had gained some fluency, they were encouraged to use the computer as a means of completing their language arts assignments. Six to eight weeks were required before students were ready to make more extensive use of the computer.

Soon students began to compose stories, poems, and letters at the computer. Techniques for word processing were introduced gradually. The computer was used extensively for written responses associated with our reading activities. Students responded on the computer to short stories, theme units, and our novel study units. Class story books and individual student books were written, edited, and printed on the computer.

We found students tended to be more willing writers when using the computer. They wrote longer stories, and did more editing. Editing was done both on the screen and on hard copy, with assistance from peers, parents, teachers, student teachers, volunteers, and senior citizens. Student work was displayed in the classroom, coiled in booklets and added to the library collection, shared with their friends and family, and included in newsletters and students' publications.

The opportunities that we have had to integrate the computer into the curriculum have allowed us to help students prepare for this age of information. It only makes sense that the students we teach use and become proficient with the technology of the age.

Telecommunications

The excitement and advantages of telecommunication

Telecommunications has opened a whole new area of interest and learning for the students at Malmo, and made maps and messages very important. "May I send a link to

. . . ?" or "Have I got a message back yet?", are frequently asked questions by our students.

We are using Macintosh computers, *AppleLink* software, and a Practical Peripherals modem. Links are written directly in *AppleLink*, or on the Apple IIgs and transferred to the Mac. They can then be sent as a disk file or further converted to *AppleLink*. Both electronic mail and an extensive bulletin board system are involved. Text, graphics, and sound are transportable. A number of *HyperCard* stacks have been linked. Files written in most any Macintosh software can be sent as disk files. Graphics in *MacDraw*, *MacPaint*, or *SuperPaint* can also be sent.

Apple Global Education Network now has approximately 150 schools participating. These schools are located in Canada, United States, most of the European countries, Australia, New Zealand, Indonesia, Japan, Chile, Israel, Bahrain, and Saudi Arabia. All of the schools must be able to communicate in English, but English is not the only language of communication, as messages come in French, German, Spanish, Finnish, and Latin. Hopefully, Arabic, Inuktitut, and other language fonts will also be available soon.

The avenue of telecommunications provides our students with a real audience to receive their writing and students work hard to prepare the messages they send. They are especially concerned about the quality of their work when they are linking to students who are learning English as a second language.

Elements in telecommunications

Technical Considerations

A computer, a modem, appropriate communications software, and a telephone line are required for telecommunication. More student involvement and ownership are the advantages of having equipment in the classroom or library area, rather than in the school office.

Keyboarding

The advantage of students having keyboarding skills soon becomes evident. Our grade three through six students had numerous occasions to enter links and receive responses. They are able to sit down at the computer, concentrate on the message they are sending, and quickly key in the text they desire. Lack of keyboarding skills was mentioned by others on our network as one of the biggest drawbacks to student participation in the area of telecommunications.

Social considerations

Involving students in telecommunications provides them with the opportunity to gather information via the network and interact with students and/or teachers in other parts of our country and the world. They receive up-to-date answers from real people, often children their own age. This adds a dimension that does not exist in the books of the school library and is very motivational!

At times it is necessary to deal with language differences and stereotypes. Due to the nature of our school population, we have a focus on multiculturalism, so our network connections are used to add significantly to this aspect. We found our global communications network a great source of information and support for another focus, global environmental concerns, which are shared by many students around the world!

Monitoring considerations

Monitoring by a teacher or group of teachers is very important in order to keep the caliber of the projects at a suitable level. Unsupervised penpal activities soon degenerate into less than desirable drivel. Our students and teachers have proved to be a very responsible group. Ground rules for writing projects, well defined procedures for all

projects, and continual teacher participation and supervision are important if projects are to succeed.

Timeline considerations

Setting timelines on projects and tying them into the school calendar seems to make a project more workable. Projects that run for the fall, winter, or spring term work well. Since we are a world wide project this is not strictly adhered to due to the variety of agendas in other parts of the world. Not everyone operates on the same calendar as our Canadian schools! We have enjoyed the spontaneousness of the network and tried to be flexible in our programming.

Curriculum considerations

Relating telecommunications projects to on-going curriculum activities within the school does make the projects more meaningful than if they were done in isolation. In order to accommodate others on the network, one does become involved in projects which would likely not have been a part of the regular school program. We have found many of these projects to be very worthwhile. If there is a class or a group of students that are willing to take on a project, and the project shows potential for growth and understanding, we will try to become involved. A project proposed by an Austrian school on the status of seniors would not have been a part of our program, but efforts to accommodate their project proved to be a very worthwhile learning experience for our students. There are times when the response to someone's project comes from a teacher rather than students. Not always do we have a group of students ready to be involved in every project, and yet the input of data from our area (we are the only Alberta school on the AGE network) would aid the project.

Each project is accompanied by a number of off-line experiences which form a very important, and much more time consuming part of the activity. Pre- and post-activities may involve individual students, small groups, whole classes of students, or sometimes the whole school.

Successful telecommunications projects

In order to be successful, the provision of some **structure** to a telecommunications project is an important element. It is necessary to set specific goals, expect specific tasks to be carried out, and anticipate specific outcomes. Having one person or a small group of people take **ownership of a project** works effectively. Then the project will be coordinated, from the call for collaborators to the summary and distribution of results.

Setting a **time frame** is also important. It is necessary to provide some lead time. This allows others to consider the project, decide who will be involved, and gather the necessary resources. Projects that have a set beginning and ending time are more likely to be successful. A deadline for response submission is necessary if data is being collected by various sites, so that final consolidation of all information can be carried out and returned to participating sites.

Small scale testing before launching the main project seems to be a good idea, but does not happen often. One thing that does happen is the repeat of a project that was especially successful. This sometimes includes the same schools as well as new ones.

The **format** in which data is recorded is one of the aspects that needs careful consideration. If the format is not clear it causes uncertainty among those participating and makes it more difficult for hosting students to accurately and effectively use the data that comes in.

What happens on the network

Although there is definitely a place for penpals and one time links, the most interesting and the greatest educational value has been produced by the more extensive projects. Use of this exciting means of gathering first hand information for units in health,

science, and social studies, as well as enriching our language arts program, has motivated us to be as active as possible.

Christmas projects

In December of 1989, when my class was learning about Christmas customs of various people, we placed an outline on our computer bulletin board asking for information from the schools, and received much valuable information, all structured within our outline. We were pleased to have high school students as well as elementary school students respond. An added touch was provided by *HyperCard* stacks containing Christmas graphics and songs. A link from Helsinki caused the biggest stir. A group of high school students explained their Christmas customs and had the nerve to claim ownership of Santa Claus, saying that Santa lived in Lapland, their country. My students were appalled and declared, "No, he's ours. He lives at the North Pole." We got out the globe and discovered that Helsinki is much closer to the North Pole than Edmonton. "But he's still ours!"

Our 1990 Christmas project was one that swept our whole school and many others on our network. Since Malmo was in charge of our daily AGE$ News, we passed on to other schools the highlights we received. In addition to the usual information on Christmas celebrations, we received from Kangaroo Flat Primary School, in Bendigo, Australia, their own version of The Twelve Days of Christmas. Soon we had many versions to sing in our school assemblies! Can you tell where these lines originated?

- 12 Navajos weaving, 11 lobos leaping, 10 bobcats bouncing, 9 coyotes calling, 8 prickly pears a-pricklin', 7 senoras singing, 6 rattlers rattling, 5 golden zias, 4 ristras of chili, 3 clay post, 2 enchiladas, and a roadrunner in a yucca bush.
- 12 parrots prattling, 11 numbats nagging, 10 lizards leaping, 9 wambats working, 8 possums playing, 7 climbing koalas, 6 platypuses, 5 kangaroos, 4 kookaburras, 3 jabirus, 2 pink galahs, and an emu up a gum tree.

Getting to know our network neighbors

For the first 26 school days of 1991, we sent and received information from several sites around the globe, focussing on one letter of the alphabet each day. In each message we tried to share something important about our location that would be of interest to the rest of the participating schools. At Malmo School these messages became the contents of a huge wall display, and were turned into a school wide contest.

A What would you do with an amoutiq?
Name a Spanish mission that was built in 1718 and used as a fort?
Name the largest monolith that is situated on traditional sacred aboriginal land.
How did Alberta get its name?

Answers to these questions were found by searching the A column of our wall data base.

Folk literature

A project on folk literature from the various areas of our global network has been of special interest to us. Here again the topic we thought would be of special interest to elementary school students has also been well received by high school students. One group of high school honors English students took on the project of writing original, modern fairy tales to share with everyone. Many versions of the Cinderella story, versions of other common folktales as well as Inuit, Indian, and Metis folktales were submitted. Graphics accompanied some of these folktales as well.

Social studies units

Our grade three students have been able to link to the schools on Baffin Island while doing a social studies unit on the Inuits of Northern Canada. Questions that could not be answered by using our books were answered by Inuit students and their teachers on

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Baffin Island. Being able to make direct contact with the Inuit children has helped our students to increase their understanding of our native people.

Grade five students linked to other classes across Canada to gain information on Canadian lifestyles. They compared the information received to their own lifestyle. As links go back and forth, friendships are built and information is expanded and refined. We focus on similarities.

A two-month study of Australia by Malmo grade 3/4 students was enriched by the many links that came to us from our primary school in Bendigo. Sea mail packages also were sent both ways across the ocean.

Current affairs

Involvement in matters of current affairs is a natural telecommunications activity. Our students are responsible for a daily newspaper called This Day in AGE$. The content of the news items ranges from international to in-school. Involvement in the publication of newspapers has taken many forms. Students who participate benefit from the activity, whether the papers were long or short, general or topical, elementary or secondary.

The excitement of first hand messages from California at the time of the big earthquake resulted in bulletin board displays and copies of links being taken home by students. We learned about things over the network that we never heard on television or radio. The *Earthquake HyperCard* stack produced by Apple has been of special interest to our students.

Currently there is much information on the Berlin Wall and the Gulf Crisis. Older students are asking questions and stating opinions. The effect of the media is a topic of interest. Students in different parts of the world are comparing the coverage they receive. Since we have an Arabic bilingual program in our school, the issues of the Middle East have been approached by students as young as grade three. Issues of multiculturalism and discrimination are important.

By linking messages to Vienna we were able to take part in Austria's computer fair. We kept in touch with Polar explorers through the news sent from our schools in Norway.

We have followed the 1991 Alpine Ski Championships in Austria in a very special way. Students and teachers there sent many messages to the rest of the world, not to give us the information already in our newspapers, but to add those items that were of special interest to our students. Their special assignment was to go out and interview police and security people, hotel and hospitality personal, the environmentalists, and the skiers themselves. Then they reported to the rest of us on the network. In addition to their special assignment of interviewing, the students in our AGE school in Saalbach took special telecommunications greetings from Malmo students to Edmonton's Edi Podivinsky. Edi was thrilled. They even cheered for OUR skier!

Health, science, and environmental studies

Various mini projects on care of the elderly, food and meals, and drug abuse have been explored.

Daily weather reports were linked during the month of February 1990, from a number of sites to a school in Nova Scotia. They then returned charts and graphs to the participants. Information on acid rain has been collected and linked to others on the network. During the 1990-91 school year our weather collections have consisted of a weeks recordings every five weeks. This way we get a glimpse of what it is like in each site throughout the year.

Articles in the newspapers are often a source for a mini project, such as the article about the Canadian government discussing the matter of (making a stink about) disposable diapers. A grade four student linked out a response to this to see if others had similar concerns and found that an article in one of our Canadian magazines had been read by a respondent in Saudi Arabia.

Mathematics and art

Surveys conducted at various grade levels, often serve as graphing material for younger students, while older ones use it in spreadsheets and graphs. The information has been shared in many formats. Problem solving activities have also been linked.

Using various graphics programs, students have looked at architecture and how buildings vary in different locations. Young students (grades 1-3) made drawings of their homes, which then became the blocks for a composite "quilt". Having blocks from Norway and New Mexico in a quilt certainly made it unique. Illustrations to go with stories have been linked. Other projects included an activity on fingerprints, and one called Imagine, where students drew and then wrote about the five most important words they would share with an alien.

Language arts

What better way is there to motivate letter writing than to have children write letters, link them on the network, and then receive answers promptly? A vast improvement in the letter writing skills was noted as grade three students responded with 200-300 word letters.

An interactive poetry project involving the writing of couplets—two line rhyming poems—on the theme of winter versus spring, was started by my grade three students. After linking only the first line of these couplets to a number of schools and were delighted with the results. Students in Spain and Norway (ages 13 to 16), learning English as a second language responded with their second line. Inuit children on Baffin Island as well as children in Massachusetts and Arizona sent responses.

A story about a green monster who ate broccoli was sent to us on Saint Patrick's Day from students at Pond Inlet on Baffin Island. In a sequel to this story, the monster visited our city of Edmonton and Malmo School. Once my students had had their fun, they sent him (links, of course) back to Pond Inlet.

Students are currently involved in an Online Writers' Workshop. Students and teachers post biographical information. Students can then post a story that is nearly ready for publication. They are also expected to respond to the stories of others. It is our objective that every posted story will have at least one response within two days.

Our language arts program has been enriched by these and numerous other writing projects which have provided opportunities for our students to write using computers.

One of the exciting things about network communication has been the activity between students in different age groups. There has also been a rich dialogue between administrators, teachers, student teachers, and students. Helsinki high school students are special to Malmo grade three students.

Conclusions

Our success in the keyboarding program at the grade three level has been very rewarding. Students become efficient computer users. The computer has become a powerful tool in language arts and other areas, and students have shown a marked growth in their writing skills.

AGE telecommunications has provided many benefits for both students and teachers. This new and exciting way to exchange information has provided students with a real audience for their writing. Students quickly gain first hand information from students in other parts of the world. They share their concerns for a safe global environment, for peace, and freedom, and gain an understanding for the feelings of others.

Teachers consult and compare with other teachers in our own country, continent and around the world, sharing projects, problems, and solutions. We trust that we can improve global education and make the world a better place for future generations as we work together through AGE.

Note: This paper is a condensed version of one provided to the Survival Skills Media Conference in November 1991, for printing in their Proceedings Booklet.

Mentorship: How and For Whom?

Don Green

Traditionally, mentorship programs have been established for assistance in career-decision making with Senior High School, College or University students. Although it has been shown that this is an acceptable and appropriate method, we feel that a mentorship program can be more than the above.

1. It would appear that knowledge acquisition at any grade level would be an acceptable goal. This might take place in a high interest area or over an expanded topic. The contribution of the expert in developing knowledge in a particular area would bring a whole new dimension to how most students expect learning to take place.

2. If the opportunity was given to explore possible areas of interest, it would provide some students an opportunity to establish a focus area for future work. This too could lead to an increase in knowledge through a means other than book-learning.

3. Subject orientation, in which a specific talent or strength might be extended, is not likely to happen in the school setting. This might be tied back into Type III Enrichment activities in the school and, in this instance, the mentor could very well come to the school.

4. Personal Development is an area not usually thought of as being supported by a mentor. Some students require a great deal of confidence building. The mentorship program provides an opportunity to gain knowledge about one's self in a totally different environment.

The "Goodness of Fit" between the mentor and mentee is of utmost importance in all cases, but in this instance, it is doubly important.

Students most likely to blossom under this arrangement are those who demonstrate a sincere interest in particular topics or problems and also show a willingness to pursue at advanced levels. Mentorship is the act of personalizing learning by doing and therefore demonstrating real purpose with real problems. The student's role shifts from lesson-learner to first-hand-inquirer and brings about a synthesis and application of the content - therefore personal involvement.

The teacher serves as a facilitator and assists students in developing data gathering and investigative techniques. This role needs to deviate from the Teacher Centredness side of the continuum towards the Child Centredness approach. This may require a change in how learning is viewed, not only by the teacher but by the system.

The Centre for Gifted Education program is designed to provide support for teachers at all grade levels, ECS to Grade 12, within a radius of Calgary in which transportation of either the mentor or the mentee can be facilitated. The teacher, after identifying a possible candidate for the mentorship program, should discuss possible scenarios with the student and the parents, then contact the Centre for the names of possible mentors. The school staff then becomes responsible for the remaining arrangements as to time, date, and place. At this time, it is important to reinforce the importance of a "Goodness of Fit" for the activity to be successful.

Integrated Activities for Classroom Enrichment

Cledwyn Haydn-Jones

Presentation:

1. Overview of Integrated Activities to conference delegates

   (a) Active Learning
   (b) Putting the rich in enrichment
   (c) Child Drama and Dance: the legacy of Slade, Way, Heathcote, Boorman, Livant
   (d) Value of Child Drama

   growth in imagination and creativity
   aesthetic education
   movement/psycho-motor
   cognitive growth e.g. language development (myths and metaphors)
   affective attributes e.g. 'engagement' in learning
   improvisation and script development
   dramatization (possibilities for 'intrinsic' motivation)

   (e) CoRT activities (de Bono) and dramatic interpretation

2. Demonstration lesson (grade 5 level)

   (a) Introduction/'motivational set' (horror, anguish, disgust)
   (b) Pre test: knowledge of drama (plot, character)
   (c) Warm up activities
   (d) Presentation

   i Story of Pied Piper of Hamelin (related dramatically with challenging vocabulary)
   ii 'Act out' (dramatise) and move with various scenarios/characters
   iii Discussion of legend: script and characterization
   iv Improvisation

   (e) Association/Review

   i vocabulary/comprehension
   ii developing the play (brainstorming)
   iii alternative sequences and sub plots
   iv climax/denouement

   (f) Post test ('dip sticking' about new things learned)

(g) Conclusion

i posing the possibility of using the Hamelin theme for contemporary problems (using CoRT strategies)
ii preparing class for next class: Robert Browning's famous poem

Enrichment:

The Rocky View School Division has adopted the Schoolwide Enrichment Model (SEM). Program Specialist, Jo-Anne Koch, Pupil Services Department, principals and teachers have modified SEM developed by Renzulli and Reis (1985) to suit the needs of Rocky View schools and students. Although 'revolving door' and the R.P. 4 (resource program level 4) are important components of the Rocky View model, a great deal of emphasis is placed on Type I enrichment in the regular classroom. Some activities recommended for the academically and artistically talented students

"... can be applied successfully to larger segments of the school population" (Shore and Teiamis, 1985; Birch, 1983).

Type I Enrichment comprises general exploratory experiences and activities that are designed to expose students to a wide variety of disciplines (fields of study) such as visual and performing arts where - at the elementary school - are not ordinarily covered in the regular curriculum.

Presentor's Experience with Child Drama:

The presentor in his first degree program at The University of Wales, Bangor, studied Education and Dramatic Art. As well, he acted professionally both during and after university with various theatre companies and B.B.C. (Wales) Radio and T.V. As a teacher in London the presentor adopted successfully the ideas of Peter Slade in Child Drama. Language Arts lessons, at the grade four level for example, were frequently transformed into integrated activities which complemented 'Language Learning':

choral speaking (e.g. Robert Browning's poem)
mime and movement
legend retelling (saga groups)
action songs
country dancing
story adaptation/acting out
moral education role play/simulation
movement education (physical education)
swords/stage fights

The London slum kids were often exposed to a series of lessons that comprised many of the above activities in one lesson. The adaptation of the Hamelin story is a good example (e.g. mime, movement, choral speech, signing, acting out, improvisation, and 'stage fights').

Students were 'engaged' in their learning. They returned to their desks and the basal reader with a greater anticipation for and understanding of text and context. The new vocabulary (e.g. virulent, rodents, vermin) and concepts (e.g. horror, disgust, betrayal, avarice) - introduced in the dramatization phase of the story - was already familiar to the students before the text was re-read.

Aesthetic Education and the Value of Drama:

"Proponents of aesthetic education ... see (it) as a form of aesthetic literacy in every art for everyone, and the work in the individual arts are elective opportunities for those who want competence in them".

H. S. Broudy (1977)

"... a very wonderful thing... exists in our midst but it is as yet hardly notices... It is a creation, a skill, it blossoms where there are patience, understanding, happiness, freedom, observation and humility. It is born of plan and is nurtured, guided and provided for by the wise parent and the able teacher. It can be drawn out, though it may evolve alone to some extent. It can take the form of games, dramatization, classroom drama acting exercises, free expression, improvisation, activity method and creative drama.

We are to consider them a human activity, and a skilled one at that, though this skill is to a large extent unconscious".

Peter Slade (1969)

"Students consistently expressed positive attitudes about SEM. They collectively viewed school as a place that more accurately addressed their personal needs and that provided them with opportunities that they might not have ever had otherwise. Perhaps of ever greater importance were some attitudinal changes expressed by students such as the following:

1. a general feeling that pursuit of individual interests is both acceptable and encouraged in school;

2. a perception that completion of workbook pages and other traditional classroom assignments is not an end but rather a means for obtaining opportunities for greater exploration, training, and creative production within topics based on one's interests and beliefs that school is intended for students to become more attuned to their own personal needs and interests while acquiring the skills necessary for successful adulthood".

(Olenchak and Renzulli, 1985)

References:

1. Jones, B. and McFee, J. (1986). Research on Teaching Arts and Aesthetics, Handbook of Research on Teaching (906 - 916) 3rd edition. New York: Macmillan

2. Olenchak, R. and Renzulli, J. (1985). The Effectiveness of the Schoolwide Enrichment Model on Selected Aspects of Elementary School Change. Gifted Child Quarterly; 33, 36 - 46

3. Slade, P. (1969) Child Drama. London: University of London Press

Cledwyn Haydn-Jones

Beyond Reference Skills and Report Writing
Facilitating the Gifted Learner's Investigation of Real Problems

Jo-Anne Koch

INTRODUCTION

One of the basic tenets of a defensible gifted program is to provide students with an opportunity to investigate real problems using methods of inquiry employed by experts. However, while gifted students have the ability and interest they frequently lack the skills to conduct their own investigations. When they are given the opportunity to become investigators and idea producers, they frequently approach the task haphazardly, become bogged down and ultimately frustrated at their inability to conduct an advanced research project.

A search of the literature reveals many fine independent study materials (see listing of References/Resources attached) available for use by the classroom teacher but few provide a comprehensive scope and sequence for guiding gifted students through the investigation of real problems.

The following listing of skill sequences and accompanying RESEARCH MANAGEMENT PLAN attempts to provide such a framework.

A SCOPE AND SEQUENCE FOR ADVANCED RESEARCH

STEP 1: Planning

- Choose a general topic, concept or field of study
- Conduct preliminary research/background reading
- Identify a specific problem, issue or concern of genuine interest
- Review recent relevant research
- Formulate one or more research question, hypothesis, theory or thesis statement
- Select appropriate general research design/study method
- Devise specific research design/action plan/proposal to guide the investigation
- Develop a tentative timeline for the study
- Identify potential audience/outlet
- List possible products

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STEP 2: Collecting and Organizing Data

- Select suitable general research strategy(ies)
- Choose and use appropriate research techniques and tools
- Identify and master specific methodological skills required for this study
- Ensure research is conducted in responsible, ethical manner
- Organize data for further analysis and interpretation
- List specific methodological resources employed in the study

STEP 3: Analyzing and Interpreting Data

- Judge authenticy, credibiliity and relevancy of accumulated data and revise study if necessary
- Perform appropriate statistical analysis(es) on accumulated data
- Summarize findings and/or draw valid conclusion(s)
- List implications/suggestions for future study

STEP 4: Communicating Findings

- Create a polished product
- Share research results/product with appropriate audience/outlet

STEP 5: Evaluating

- Evaluate research process
- Evaluate product(s)

RESEARCH MANAGEMENT PLAN

Developed by Jo-Anne Koch

Name: _____ Grade: _____ Beginning Date: _____ Estimated Ending Date: _____

Teacher: _____ School: _____ Progress Check/Conference Dates: _____ _____ _____

GENERAL TOPIC, CONCEPT OR FIELD OF STUDY:

_____

_____

SPECIFIC PROBLEM, ISSUE OR CONCERN:

_____

_____

RESEARCH QUESTIONS, HYPOTHESIS OR THESIS STATEMENT:

_____

_____

_____

GENERAL RESEARCH DESIGN/STUDY METHOD:

___ Historical ___ Causal/Comparative ___ Case & Field
___ Descriptive ___ Experimental ___ Correlational
___ Action ___ Quasi-Experimental ___ Developmental
___ Other: _____

SPECIFIC RESEARCH DESIGN/ACTION PLAN/PROPOSAL:

_____

_____

_____

METHODOLOGICAL RESOURCES

Resource Persons/How to Books:

Special Materials/Equipment/Instruments:

Possible Products	Potential Audiences/Outlets

NOTE: Additional information is recorded on reverse side.

RESEARCH MANAGEMENT PLAN

Developed by Jo-Anne Koch

Name: _____ Grade: _____ Facilitator: _____

School: _____ Teacher: _____ Mentor: _____

DATA COLLECTION AND ORGANIZATION

General Research Strategies

__ Information Search
- __ Primary Sources
- __ Secondary Sources

__ Experiment
- __ Laboratory
- __ Field

__ Survey
- __ Questionnaire
- __ Interview

__ Observation
- __ Naturalistic
- __ Participant

Specific Research Techniques & Tools

__ Reading/Listening/Viewing
__ Computer Database
__ Letterwriting
__ Artifacts
__ Archives
__ Content/Document Analysis
__ Collecting
__ Selecting
__ Measuring
__ Examining
__ Questioning
__ Listing
__ Designing/Constructing
__ Describing/Documenting
__ Summarizing/Paraphrasing
__ Combining/Integrating
__ Ordering/Sequencing
__ Classifying/Categorizing
__ Comparing/Contrasting
__ Replicating
__ Restructuring
__ Elaborating
__ Labelling
__ Coding
__ Variables
__ Grouping
__ Sampling
__ Notetaking/Notecards
__ Diaries/Journals/Logbooks
__ Forms/Matrices/Files
__ Graphic Organizers
__ Audio/Video Tapes
__ Photo/Slides/Films
__ Apparatus/Equipment
__ Instruments
__ Simulations
__ Tests/Trials/Treatments
__ Field Test/Pilot Study
__ Tallying
__ Ranking/Rating Scales
__ Checklists/Inventories
__ Outlines
__ Bibliographies
__ Other: _____

DATA ANALYSIS AND INTERPRETATION

__ Judging/Verifying
- __ Authenticy
- __ Accuracy
- __ Credibility
- __ Relevancy

__ Distinguishing/Separating
- __ Fact & Fiction
- __ Fact & Opinion
- __ Fact & Theory
- __ Fact & Value Claims
- __ Hypothesis & Evidence
- __ Hypothesis & Generalization

__ Evaluating
- __ Validity
- __ Reliability

__ Revising
__ Estimating/Approximating

__ Descriptive Statistics
- __ Frequency Distribution
- __ Measure of Central Tendency
- __ Variability

__ Inferential Statistics
- __ Correlation
- __ Chi-Square
- __ T-Test

__ Determining Cause & Effect
__ Hypothesizing/Theorizing
__ Predicting/Inferring
__ Summarizing/Synthesizing
__ Generalizing
__ Concluding
__ Other: _____

Implications/Suggestions for further study:

_____

_____

_____

EVALUATION

__ Knowledge __ Process
__ Skills __ Product
__ Other: _____

__ Self __ Teacher
__ Peer __ Facilitator
__ Other: _____

Note: Additional information is recorded on reverse side.

- References/Resources -

- Artifact Box Exchange Network, Scott Johnson, The University of Connecticut
- A Student's Guide to Conducting Social Science Research, Barbara Bunker et.al., Center for Creative Learning
- Challenge Projects (for the Gifted Reader), Houghton-Mifflin Canada, Ltd.
- Chi Square, Pie Charts and Me, Susan Baum et.al., Pac-Rim Book Services
- Choosing and Charting, Jan Eichenberg & Lindy Redmond, Center for Creative Learning
- Data Bases for Beginners, Elaine Englemen Schulman, Creative Learning Press
- Doing Your Own Reasearch, Eileen Kane, Creative Learning Press
- Focus on Research, Curriculum Branch, Alta. Ed.
- Fostering Independent, Creative Learning, Donald J. Treffinger and Patricia McEwan, Creative Learning Press
- How to Conduct Surveys, Arlene Fink and Jacqueline Kosecoff, Creative Learning Press
- Independent Study Program, Susan K. Johnsen and Kay Johnson, Old Wagon Learning Assoc.
- Organizing Thinking, Howard and Sandra Black, Mind Resources Inc.
- Pathways to Investigative Skills, Deborah Burns, Creative Learning Press
- Statistics Machine, Trillium Press, Pac-Rim Services
- Research Without Copying, Nancy Polette, Western Educational Activities
- Teacher's Choice, Sandra Kaplan, Goodyear Books (out of print)]
- Teaching Thinking: Enhancing Learning, Curriculum Support Branch, Alta. Ed.
- The Schoolwide Enrichment Model, Joseph S. Renzulli and Sally M. Reis, Creative Learning Press
- Up Periscope, Dallas Independent School District

- Publishers/Distributors Addresses -

Center for Creative Learning
P. O. Box 619
HONEOYE, New York 14471

Creative Learning Press, Inc.
P. O. Box 320
MANSFIELD CENTER, Connecticut
06250

Dallas Independent School District
2517 South Ervay Street
DALLAS, Texas
75215

Houghton-Mifflin Canada Ltd.
150 Steelcase Road West
MARKHAM, Ontario
L3R 3J9

Mond Resources Inc.
Box 126
KITCHENER, Ontario
N2G 3W9

Old Wagon Learning Associates
1404 Old Wagon Road
AUSTIN, Texas 78746

Pac-Rim Book Services
15 - 11191 Horseshoe Way
RICHMOND, British Columbia
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The University of Connecticut
231 Glenbrook Drive
Storrs Hall, Rm. 28 4-7
STORRS, Connecticut 06268

Western Educational Activities
P. O. Box 3806 Station D
EDMONTON, Alberta
T5H 2S7

Mentorship on Action

Stephen Leppard

Philosophy

At Malmo School, we believe that learning is enhanced by the experience we provide in school, and by the people who touch a child's life.

Our mentorship program adds a new dimension to learning. During the school year, students work with volunteers mentors to learn more about a specific topic. Whether it's to talk about nature, dogs, or the United Kingdom, our mentors enthusiastically share their information, knowledge and skills.

Business people, homemakers, scientists, post-secondary students and senior citizens ... mentors represent all walks of life. Their contributions of time has a positive affect on a student's overall education.

The mentorship program benefits Malmo students in many ways. They have an opportunity to work with an interested and experienced mentor, and they can also share their new-found knowledge with their peers in the regular classroom.

These students have been identifies by Malmo teachers as children who will benefit from gaining additional information. They are highly motivated and exceptionally interested in learning beyond the curriculum. Mentors can help these students to explore real life problems effectively.

Each Mentor will not only effect the learning of a student but gain information about our school and the surrounding community.

How does it work?

Mentors decide on a topic and work with the teacher to deliver a program that will benefit everyone involved. They may choose to work with one child, or with more than one at a time.

Mentors also select an appropriate time to work with students, depending on the topic. Weekly, bi-weekly, and monthly times may be arranged. Meetings can be held at the school, during the day, or at times when a field trip is necessary. Any cost incurred by the mentor will be verified by the program coordinator for reimbursement.

Mentors decide how much time they wish to commit to the program. The length of the project can range from three weeks to three months. The mentors' schedule will also dictate the length of each meeting.

Gifted Females: A Dilemma

Judy Lupart

Recent publications reveal that even though there has been marked improvement with respect to societal attitudes and options for females, and gifted females in particular, over the century, prospects for full realization of potential are still less favorable in comparison to male peers (Kerr, 1985a, 1985b); Silverman, 1989; Eccles, 1985). In her fascinating recapitulation of the life and accomplishments of Leta Hollingworth, a noted pioneer in the study of gifted females, Silverman (1989), provides some vivid examples of the hurdles that women have had to overcome. A particularly poignant example is found in a recorded speech of Le Bon, the founder of social psychology, in 1879 on the subject of women's intelligence. Generally, he paints a picture of females as being far inferior to the male population, even though he acknowledges exceptional cases in which females achieved superior performance. However, he summarily dismisses these as being rarefied quirks of fate and as uncommon as the birth of a two headed gorilla.

Accepting that such sentiments were generally held at the beginning of this century, it is the purpose of the current presentation to examine more recent trends and to consider the future outlook for gifted females.

Findings from Longitudinal Studies

One of the important sources of information in this area comes from longitudinal research. Barbara Kerr (1985) has synthesized the findings of four such studies involving gifted females, including the seminal work of Terman (1925), which warrants special mention here. Terman's longitudinal study consisted of 1,528 individuals who scored over 135 on individual I.Q. tests in 1921. His sample included 671 females and 847 males, who were extensively examined, from ten years of age to retirement.

Very briefly, the results indicated that, for the most part, gifted men and women achieved fairly equitably up until the time of college entrance and for the initial undergraduate degree with 66.5% of the females and 69.8% of the males graduating from college.

After this point significant differences are noted in that 39.8% gifted women and 47.6% of gifted men in this sample continued on to graduate studies and only 14.2% gifted women, as opposed to 31.1% gifted men continued on and earned advanced degrees (Ph.D., M.D., LLB.). Most significant were the discrepancies in the career achievements. The majority of males in the sample achieved prominence in professional and managerial occupations, whereas 50% of the female sample became housewives. Moreover, only 11% of gifted women versus 86% of gifted men were employed in professional or managerial careers in 1955. More often, women who did pursue careers chose occupations such as teaching, social work, secretarial or library and nursing.

The recent synthesis of the results of Terman's and three other longitudinal studies directed at gifted females, Kerr (1985), indicates that we need to examine all stages of development of gifted females to gain a better understanding of the issues and trends leading to underachievement, particularly at the career advancement and professional development level. Significant findings are briefly outlined below:

a) The Young Gifted Girl - in general the studies found that young gifted girls:
   * were superior physically, better adjusted than were average girls, and more socially knowledgeable,
   * had interests more like gifted boys,
   * were more strongly influenced by their mothers than were gifted boys,
   * obtained self-esteem through school and club achievements,
   * expressed wishes and needs for self-esteem at the age of ten.

   The following characteristics were particularly characteristic for highly gifted girls, in that they:
   * were often loners without much need for recognition,
   * were often second-born females,
   * aspired to careers having moderate rather than high status,
   * had high academic achievement.

b. Adolescent Gifted Girls - the following points collectively describe the study's findings for adolescent gifted girls:
   * IQ scores dropped in adolescence.
   * They showed higher academic achievement than gifted boys of the same age.
   * They showed high involvement in extracurricular and social activities.
   * Around the age of fourteen there was a critical shift in lifestyle values related to strong needs for love and belonging.
   * They expressed fears that a choice between career and marriage had to be made.
   * Eventual career-focused females expressed interest in scientific/idea oriented careers.
   * Eventual homemaking females expressed interest in social and people oriented careers.
   * Highly gifted girls often did not receive recognition for their achievements.

c. Gifted Women - In general the academic and vocational achievement of gifted women, compared to that of gifted men, continues to decline throughout adulthood. Specifically, this is shown by the following points:
   * Most employed gifted women chose disposable careers and only a small group entered the higher professions.
   * Salaries of gifted women were much lower than those of gifted men in occupations at the same level.
   * Highly gifted males' income averages almost twice that of highly gifted women.
   * Only a small proportion of highly gifted women were unemployed fifteen years after high school graduation.
   * Early marriage and birth are closely related to low achievement.
   * Between the ages of 23 and 29 the careers of males accelerated, whereas womens' stood still and they may not catch up to their male peers for the rest of their working lives.
   * Single career women derive satisfaction from their work and also enjoy friends, hobbies and community activities.
   * Homemakers receive less satisfaction from their work than do single career women or integrators who combine child birth, marriage and career.

* Mental stability in the support of others is crucial to successful integration of career and family.
* Integrators are highly satisfied as a group.
* Esteem needs become highly important around the age of forty.
* IQs do not predict career achievement or employment. (Kerr, 1985, pp. 87-123)

Despite the fact that there are no comparable Canadian studies, it would seem that the trends for females at least at the university level are quite similar. For example, the Canadian Yearbook, 1990 from Statistics Canada reveals the following breakdown with respect to bachelor degrees awarded by Canadian universities in 1986.

* household science	3% male, 97% female
* education	26% male, 75% female
* engineering	90% male, 10% female
* forestry	83% male, 17% female
* nursing	3% male, 97% female
* math/physical sciences (geology)	80% male, 20% female
* mathematics	65% male, 36% female
* physics	87% male, 13% female
* total degrees earned at the bachelor level	47% male, 53% female

These figures confirm a pattern of traditional career/discipline choices; and similar to the U.S. longitudinal studies, the breakdown by gender with respect to total bachelor degrees earned is roughly equivalent. In a similar vein a look at the graduate degrees awarded by Canadian Universities in 1986 reveals a significant decline with respect to graduate degrees earned by females in comparison to males.

* Masters level	57% male, 43% female
* Doctorate level	73% male, 27% female

Current Trends

A recent study by Tomlinson-Keasey and Smith-Winberry (1983) offers some interesting insights with respect to the changing outlook for gifted females. The central focus of their study was to examine

similarities and differences between contemporary women and Terman's gifted women. On the positive side, their findings revealed notable increases with respect to educational achievement, occupational advancements, as well as confidence in the ability to take advantage of increased opportunities. However, on the down side, the data revealed much greater levels of dissatisfaction in all aspects of life for contemporary women. Thus, it seems apparent that even though some general improvements have been achieved by todays gifted females, more could and should be done to encourage the development of their full potentialities.

Future Promise

In light of the previous literature and research findings, in combination with more recent statistics concerning degrees awarded in Canadian universities, there are a number of areas which hold considerable promise for continued advancement of gifted females.

a. Changing Attitudes - greater attention must be paid to generalized social stereotype thinking. Males and females with high ability need encouragement to achieve at the level they have potential for.

b. Counselling and Guidance - schools need to provide earlier assistance for gifted females and more support is needed with respect to decisions relating to post-secondary education and career choices.

c. More Canadian Research - much of our current literature comes from United States studies and statistics. More efforts are needed to examine the patterns and issues with Canadian gifted females.

d. Mentorships - considerable benefit can be derived from pairing achieving females in professional roles with students who show an interest in these areas, particularly in male dominated fields. Such mentorships can provide prospective females with a realistic view of the profession, and advisement on the prerequisite training and experience necessary for successful advancement.

REFERENCES

Eccles, J.S. (1985). Why doesn't Jane run? Sex differences in education and occupational patterns. In F. D. Horowitz & M. O'Brien (Eds.), The gifted and talented: Developmental perspectives (pp. 251-295). Washington, DC: American Psychological Association.

Kerr, B.A. (1985) (a). Smart girls, gifted women. Columbus, OH: Ohio Psychology Publishing Company.

Kerr, B.A. (1985) (b). Smart girls, gifted women: Special guidance concerns. Roeper Review, 8(1), 30-33.

Silverman, L.K. (1989). It all began with Leta Hollingworth: The story of giftedness in women. Journal for the Education of the Gifted, 12, 86-98.

Tomlinson-Keasey, C., & Smith-Winberry, C. (1983). Educational strategies and personality outcomes of gifted and non-gifted college students. Gifted Child Quarterly, 27(1), 35-41.

Terman, L. M. (1925). Mental and physical traits of a thousand gifted children, Genetic Studies of Genius, Vols. 1 & 2. Stanford: Stanford University Press.

The Artifact Exchange Network Session

Marilyn Macyk & Bonnie Lebowitz

The Artifact Exchange Network is a one hour session presented by Marilyn Macyk and Bonnie Lebowitz which introduces a hands on biannual, interschool, intercountry project. This activity utilizes advanced research ,reference and critical reasoning skills as well as a real life experience to deliver an enrichment unit to gifted students.

Artifacts, charts, simulation exercises, tapes, slides and a student made video are some of the audio visual materials which Mrs. Macyk and Ms. Lebowitz incorporated. These materials were used to demonstrate the effective application of this program in various educational settings; in class enrichment, a pull out model and as an individual project. These materials are available for loan by contacting either presenter.

Attached are copies of the handouts which were distributed.

REGISTRATION FORM

THE ARTIFACT BOX EXCHANGE NETWORK
The University of Connecticut
231 Glenbrook Road
Box U-7, Rm 28, Storrs Hall
Storrs, CT 06269-2007
(203) 486-0617

DIRECTIONS: Please use ONE registration form for EACH teacher participant. Checks or purchase orders must accompany all registration forms and should be made payable to "The Artifact Box Exchange Network". You will receive your teaching materials approximately two weeks after we receive your registration form(s). You may want to keep a copy of this form for your records. Please check the timeline that was included with your original mailing for the proper deadlines. Canadian edeators: please enclose United States funds.

PLEASE CHECK THE APPROPRIATE LINES TO INDICATE YOUR ORDER:

_____SEND ME ONE COPY OF THE TEACHER'S GUIDE ($15.00) U.S.

_____REGISTRATION MY CLASSROOM FOR ONE EXCHANGE ($20.00) U.S.

oooooo I WISH TO PARTICIPATE IN THE:

____FALL SEMESTER, 19__ ____SPRING SEMESTER, 19___

_____ MY PAYMENT (CHECK NUMBER) IS _____

_____ MY PURCHASE ORDER NUMBER (ATTACHED) IS _____

(PLEASE PRINT CLEARLY)

Teacher's Name _____

School Name _____

Street Address _____

City_____ State/Province _____

Zip Code/Postal Code _____

School Telephone ( ) _____

Home Telephone ( ) _____ (You will be called only if a problem arises.)

Grade Level (s) of Your Class _____

Previous Exchanges (if any) Assigned to this Class _____

FOR OFFICE USE ONLY:

____*Sent*____ _____*Paid*_____ _____*Billed*_____ *Entered*_____*Contract*_____ *Returned*

reference or r ice which can be used to determine the object's place of origin, complete a clue card listing pertinent information needed to solve the clue, and then package their clues into plastic bags. Most teachers report that it takes between six and ten hours of class time to develop a box and prepare it for mailing.

HOW DOES THE EXCHANGE NETWORK WORK?

Participants may register for one or two exchanges each school year. Upon receipt of the completed registration form and $25.00 fee, the teacher will receive a complete packet of Artifact Box materials. Registrations for the Fall Exchange must be returned to The University of Connecticut by the end of September, and for the Spring Exchange by the end of January. Deadlines are also established for the notification of cooperating schools, the last day to mail a box to the receiving school, and the last day to return the box to the sending school.

WHAT ARE THE RESPONSIBILITIES OF THE PROGRAM DIRECTOR?

The Teaching The Talented Office at The University of Connecticut provides coordination efforts for the Artifact Box Exchange Network. Teachers' names, school locations, grade levels, and scheduled participation sessions are collected and confirmed throughout the year. Packets are sent to registered teachers, and they are assigned and notified of their partner schools prior to the scheduled Artifact Box Exchange mailing deadline.

WHAT IS THE COST OF INVOLVEMENT?

The Artifact Box Exchange Network is a relatively inexpensive way for teachers to involve students in a thinking and research skills program that integrates science and geography content. The initial cost of the teacher's guide and first exchange is $25.00, while the same teacher may register future classes for $15.00 per exchange. Participating schools are also responsible for the cost of mailing their boxes and returning their partners' boxes. Additional expenditures of no more than $10 are required to purchase the raw materials necessary to construct a box. A class' box may be used for more than one exchange.

HOW CAN MY CLASS JOIN?

Teachers interested in becoming a member of the "international" Artifact Box Exchange Network may obtain a registration form to the Teaching the Talented division of The University of Connecticut School of Education. To obtain a registration form (please do NOT send any fee at this time), please contact:

Scott Johnson, Director
The Artifact Box Exchange Network
The University of Connecticut
231 Glenbrook Drive
Storrs Hall, Room 28, U-7
Storrs, CT 06268
(203) 486 4826

The Artifact Box Exchange Network

Scott E. Johnson, Director

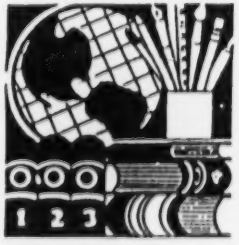
In association with the
Teaching The Talented Program,
The University of Connecticut
School of Education

BEST COPY AVAILABLE

WHAT IS THE ARTIFACT BOX EXCHANGE NETWORK?

The Artifact Box Exchange Network is a biannual, interschool project that involves students in the development of advanced research, reference, and reasoning skills through the use of a hands-on simulation activity. Borrowing content from the disciplines of archaeology, geography, and science, the network serves as a vehicle that allows students to collect, tag, reference and exchange a set of artifacts, or "clues", that are representative of their locale.

Using a checklist of twenty-five locally available objects, each participating class is responsible for conducting an academic scavenger hunt to locate such items as a picture of a local landmark, a sample of a food product that is grown in their region, a set of seasonal weather reports from the town newspaper, or a two-inch portion of an area roadmap. This collection of artifacts, complete with [illegible]d suggestions for finding appropriate references t[illegible]ght be used to identify their region, state, or city, is then assembled and packaged as an "Artifact Box". The box is exchanged with a "mystery" partner classroom in a distant locale, the identity of which is known only to each classroom's teachers. Without revealing the location from which these artifacts were collected, the receiving teacher displays the box's contents to student researchers in the partner school. These students are then assigned the task of using available reference books and non-print resources to identify the country, state or province, and town from which these artifacts were gathered. It has proven to be a unique and motivating activity that affords students a first-hand experience with basic geography and science concepts.



WHAT ARE THE OVERALL GOALS?

Participating teachers have noted numerous benefits for students who participate in The Artifact Box Exchange Network. The overall goals of the Exchange Network are:

- To develop creative and critical thinking skills.
- To help students compare their culture with communities in distant locations.
- To motivate students to skillfully utilize advanced reference and non-print resources.
- To acquaint students with the content and processes utilized by geographers, archaeologists, and anthropologists.
- To improve students' attitudes toward social studies and science instruction.

WHO CAN PARTICIPATE?

Participation is open to classes or groups of students in grades one through twelve. A participating teacher may register for either one or two exchanges per year. It is requested that a school involve no more than four groups in any given exchange. Exchanges are made between classes of equal or near equal grade levels.

WHAT IS INVOLVED IN CONSTRUCTING AN ARTIFACT BOX?

Teachers are provided with a list of artifacts that their students must collect for inclusion in their box, a set of forms used to organize and manage the collection of clues, and guidelines relating to the construction of the box and participation in the exchange network. Students are asked to find objects suitable for mailing that correspond to each of the clue descriptions, locate a specific

Facilitation of Emotional Expression in Gifted Students

Sal Mendaglio

In recent years there has been a growing interest in the non-cognitive aspects of giftedness. More and more one sees references to the social, emotional, and vocational concerns of gifted children. Many texts on the topic of giftedness include chapters on counseling of these children. A perusal of recent journal articles indicates a strong interest in the social and emotional concerns of gifted children. Some special issues have appeared on this area. The purpose of this paper is to address a particular facet of the affective domain, namely, the facilitation of emotional expression among these children. In the process, some comments will be made on how the literature interprets "affective" characteristics, and on the necessity of appropriate emotional expression for gifted children.

Affect, Emotion, and Affective Characteristics

It is current practice in the current literature to define "affect" in an idiosyncratic way. While in psychology, affect is often used as a synonym for emotion, in the literature on gifted, affect is often used to refer to personality characteristics. A perusal of popular texts suggests that "affective" in the context of a discussion of characteristics refers to a variety of descriptors some of which are directly related to emotions, while others are traits.

Though Clark's (1990) text probably contains the most extensive discussion of characteristics, one can find these treated in virtually all texts dealing with gifted education. For example, Parke (1986) lists ten affective characteristics of gifted children including: leadership ability, moralism, resourcefulness, advanced sense of humour, preference for the company of older children and adults, perfectionism, sensitivity to themselves, others, and their environment; and intensity. Clark's list is more detailed but she too includes the last two: sensitivity and intensity. These terms are the affective characteristics that most closely approach the use of the term as equivalent to emotional.

Parke's (1986) description of these two characteristics is fairly reflective of the way in which authors tend to view these terms:

Sensitivity to themselves, others, and their environment. Gifted students are very aware of their environment and the people who are in it. This awareness is coupled with sensitivity to the feelings of others and the events in that environment.

Intensity. One can feel the intensity emanating from a gifted student who is working on a topic of interest. The intense concentration, perseverance, and commitment to the task is obvious in many areas of interest, not just those involved in "school learning." (See Parke, 1986).

Clark refers to sensitivity and intensity as follows:

Unusual sensitivity to expectations and feelings of others.

Unusual emotional depth and intensity.

Sensitivity as it is described above refers to a process whereby the gifted person is capable of perceiving and processing more information from the environment—physical, interpersonal and internal—compared to the nongifted. Based on clinical experience with gifted clients, there is another dimension to sensitivity, and that is being easily moved; easily hurt.

Intensity when seen in the context of emotions refers to the quality of emotional experience of gifted persons. Those with experience with gifted children will have made an intuitive connection between superior intelligence, sensitivity, and depth of feeling—these children feel more because they "see" more.

In light of the growing evidence associating psychological stress with not only psychological but also physical illness, the emotional sensitivity to self and others and the depth of this experiencing require attention. Regardless of the view of stress one adopts, emotional reactions are of primary importance in stressful reactions. Gifted children and adolescents need assistance in emotional experience and emotional expression.

Counselling experience suggests that facilitation of emotional expression results in the acceptance of emotional experience, and reduction of emotional overreactions. When expression is encouraged, youth begin to release their emotions more regularly. Helping professionals—teachers, counsellors, psychologists—in contact with gifted youth can assist in this process by the application of empathy.

Empathy: Cognitive and Communicative Dimensions

Empathy is one of those words which is surrounded by much confusion which evaporates when it is viewed in the Rogerian tradition. In this perspective, empathy is not sympathy, nor is it simply a communication skill. It is an attempt to understand persons' internal experience—thoughts and feelings—as if we were those people. Rogers warns us not to lose that "as if" quality. We, after all, are not the persons we are trying to understand from their perspectives. Such a view emphasizes that empathy is both a cognitive and communicative process. After attempting to understand we use appropriate language to communicate to the other.

Whereas others emphasize the words used in empathy, the perspective taken here is that other aspects are far more important than the actual words used. Two of these are caring and tentativeness. The motivation for engaging in empathy is a caring for the other. Empathy, without this, is simply a "mind game" or worse a manipulative ploy. Tentativeness in presentation of our understanding of the other rests on the view that our understanding is inferential in nature. We do not have direct access to the inner-perspective of the other. We simply have bits and pieces which are both verbal and non-verbal, e.g., words, tone of voice, rate of speech, facial expression, and other body language. Like all inferences, attempts at empathic understandings require that we go beyond the information available.

A recipient of empathic understanding communicated appropriately will soon learn to take the risk to express his/her emotions in response. The term "risk" is used judiciously here—expressing one's emotions is a risk-taking affair. When we begin to employ empathy with another, it is important to appreciate this so that we are not impatient when the other does not automatically respond.

This view of empathy is important for all of its application in interpersonal interactions, however, it is particularly applicable for working effectively with gifted youth. Gifted children and adolescents are more in tune (sensitive) to the subtleties of interpersonal communication. Discrepancies, such as between verbal and non-verbal communication, are readily discerned. Due to their richer emotional experience (intensity), there is a greater need to discharge their emotionality. Such a need makes them more vigilant to the degree of caring we feel towards them. Our phoniness or genuineness is perceived easily by them.

Conclusion

The affective characteristics as typically described in the literature may mask gifted children's need for assistance in their emotional expression. While it is reassuring to see more and more concern devoted to the non-cognitive aspects of giftedness, as we still need to concern ourselves not only with such matters as leadership but the actual emotions implicit in traits such as sensitivity and intensity. The concept of empathy, when seen in its complexity, is seen as a powerful means at the helping professional's disposal in assisting appropriate emotional expression in gifted youth.

References

Parke, B. N. (1986). *Gifted students in regular classrooms*. Toronto: Allyn & Bacon.

Clark, B. (1990). *Growing up gifted* (3rd ed.). Toronto: Merrill.

Panel Discussion - Programming for High Achievers Administrators' Point of View

Keith Muirhead

To be a successful adult, today's students are going to be faced with the challenge of producing rather than reproducing knowledge. Children who can memorize and apply algorithms but cannot reason well are not adequately prepared for the jobs and society of today let alone tomorrow. Students are going to need to set their sights on authentic expressions of knowledge not only to identify the discourse, things, and performances that others have produced - e.g. by recognizing the difference between verbs and nouns or memorizing multiplication tables or matching authors with their work. Certainly, the production of knowledge must be based on an understanding of prior knowledge, but the mere reproduction of that knowledge does not constitute authentic academic achievement.

When the curriculum is geared toward the goal of authentic achievement new forms of teaching will be necessary. Teachers will have to function more as mentors and coaches, and less as depositors of static knowledge to be reproduced. Students will have to rely on teachers for help, but they will not be mere absorbers or consumers of everything the teacher says. Students will also have to take on the new roles of seeking help from and giving help to one another as they learn.

This new role is particularly important for the academically gifted student. And to help these students maximize their potential we as teachers must:

1. Understand and know the characteristics of gifted learners.
2. Provide a climate for success whether it be in heterogeneous grouping, or pull-out program or special classes.
3. Remember that gifted students need programming that offers greater depth and breadth in academic studies and one that is adapted to their rapid rate of learning,

areas of interest and specific academic aptitudes.

4. Distinguish between the one percent highly gifted, the two percent gifted and the 14% high average.
5. Understand intellectual giftedness.
6. Provide opportunities for learning at an individual rather than group pace so that they do not learn to underachieve as a lifestyle.
7. Understand there may be differences between gifted students' emotional physical and intellectual development.
8. Understand that cognitive development does not occur independently and should not be emphasized at the expense of emotional social or interpersonal development.

The major purpose of any gifted program is to provide differentiated instruction to meet the needs, interests, and abilities of academically talented students. By far the most important factor in meeting these needs of gifted students is the teacher. A teacher that does not understand the unique needs of the two or three percent academically gifted students will short change these students regardless of the organizational setting.

SOME THOUGHTS ON STREAMING OR TRACKING

Research shows no benefits are gained by tracking students into ability groups (Oakes 85, Slavin 87, 90, George 87, Garmoran and Berends) Higher achieving students do not do better when grouped together, and lower achieving students do much worse when together. Tracking is often discriminating and once assigned to a low track, very few move into higher tracks. As a result of the research some schools have reduced or eliminated homogeneous grouping and have eliminated separate classroom programs such as Gifted. San Diago Schools, for example no longer have remedial education. In B. C., a phased-in elimination of tracking or "streaming" has begun - leaving specialization for the last two years of school when students will specialize in vocational or college-bound programs. Tracking continues in many places even when the evidence is overwhelmingly against it. Perhaps it benefits a few individual students and placates some parents; but more often tracking continues because its easier to manage classrooms and schools when the range of abilities is restricted rather than if they are expansive where students need to be taught in multiple ways.

Creative Writing Ideas

Mary-Ellen Perley

In order to stimulate the Academic Challenge students I have created two major writing units. The first utilizes Homer's Odyssey as the springboard for creating descriptive, narrative, and expository writing. The second involves taking the students into the community to write the personal histories of residents in a nursing home.

This paper will outline the two writing units and suggest the steps that may be followed to create similar innovative activites. I will conclude with an evaluation of the benefits for such programs for A. C. students.

ODYSSEY WRITING UNIT

STEP ONE

The unit begins with a discussion of Homer's time and place, the mythological background to the Trojan War and the events leading up to the adventures of Odysseus. In addition the teacher should review with the students the names and relationships of the major gods, goddesses, and characters involved in The Odyssey. At this juncture the visual stimulus of a map of Greece is a good aid; the teacher may point out the various cities, islands, and areas which are mentioned by Homer. A discussion of the political and social structure of the times might follow. Finally this introduction may conclude with a review of some of the legends, stories, and plays which have evolved from Homer's two great epic poems, The Iliad and The Odyssey.

STEP TWO

This section begins with a simple teacher-generated summary of The Odyssey, which is read with the students, while discussing important aspects of the story. It is helpful to provide a blank point-form outline of The Odyssey for the students; guide them through the filling out of the form. As you work on this outline, discuss with them possible moments in the story which would make good descriptive and narrative paragraphs. Show and discuss with students the three part film/video The Odyssey and/or the film The Search for Ulysses. These provide excellent visual stimulii for the narrative and descriptive paragraph writing.

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STEP THREE

In this section the students are provided with information on writing descriptive and narrative paragraphs. They choose a moment from The Odyssey which they wish to use as the basis for a descriptive paragraph. At this point they may wish to read about their selection from Lattimore's translation of The Odyssey. Using the writing process the students now create their own description of the moment. The same process should be followed for writing a narrative.

STEP FOUR

Additional writing ideas may now be given to the students for further descriptive and narrative exercises. Some of these ideas include: pictures from Life Magazine and the lyrics of the song, "Moon Over Bourbon Street" by Sting.

STEP FIVE

At this point the teacher may give the students a handout on essay writing and discuss it thoroughly. The students are then given questions which can be developed into a full essay. Each question is discussed in class and guidance for handling the question is given. Using the writing process the students now generate their own essay from the teacher-generated questions based on The Odyssey.

NURSING HOME WRITING PROJECT

The idea for this writing unit came from reading the short story "At The Home" by Phillip in the Responding to Reading text. The students are given the opportunity to react to several pieces of literature using different forms of writing as well as trying their hand at a Homeresque approach to writing history.

STEP ONE

The students discuss their feelings about the elderly and exchange experiences they may have had with the elderly, i.e., grandparents. It is helpful to have them define what they think 'elderly' means and to brainstorm/writestorm this term while examining the possibility that the definition varies at different ages.

We then read the story "At The Home" and discuss the different attitudes presented by the various characters and how these

attitudes changed if they did, in fact, change. This is followed by a discussion of the 'timeline' of the elderly, that is, what events in history would they have witnessed or been a part of, including inventions, etc. This sets the stage for an understanding of the 'historic' past and what it might have meant to be part of it. We then read the short story "Miss Brill" and discuss the youths' attitude to the elderly, as well as some exploration of Miss Brill's insights into life.

The first writing exercise begins with a short narrative about someone elderly whom each student knows or wishes to know. Expressly encourage them to try to picture their chosen elderly person in words. Next comes a poem assignment where they read three poems and must discuss two of these in essay form using the compare/contrast method. Lastly, the students listen to the song "LES VIEUX"/"OLD FOLKS" and discuss their reactions to this song in a written assignment using any form they wish ie. descriptive paragraph, narrative, poem or essay.

STEP TWO

Assign the reading of MacLean's three articles of October, 1986, under title of "A Matter of Care". What new information have they gained? What insights into the elderly? They are then instructed to prepare summaries of the main points of these three articles written in a precis format.

STEP THREE

The students should now be prepared to discuss their interest in going into a nursing home for this project; a consensus must be achieved if the project is to go ahead. Once the class has agreed, contact is made with the nursing home, followed by a visit by teacher, to discuss various dimensions of the project. Then parents are contacted regarding the students' commitment, and a preliminary visit is made to the nursing home with the students. It is important to have them write their reactions to being there. Subsequently an arrangement is made for the director to visit the class to discuss the project, to detail emergency procedures and to prepare them psychologically and emotionally for their involvement. In order to facilitate pairing, the students write autobiographies, which are delivered to the nursing home, while the director provides names and some background information, i.e., health, age, ethnic background, some favourite interest, etc. At this point it helps to discuss interviewing techniques: one possibility is to bring in a guest speaker familiar with interviewing techniques, to assist in preparing sample questions. The teacher should arrange for recorders and extra tapes, discuss transcribing from tape, and set up a practise in class, including interviews with classmates. Student should be made familiar with points of view, the use of favourite sayings, and the appropriate length of the biographical material...a minimum three typed pages. Some guidelines are created for the first encounter, with the first session designated as a

get-acquainted meeting. Students should be prepared to talk about themselves and/or read their autobiographies. Following the initial visit, arrangements are made for a regular visiting routine. There are usually six sessions or visits - three per week - with one class spent at school to debrief and help with transcribing. The teacher monitors each student's relationship with his/her interviewee on an ongoing basis.

STEP FOUR

Throughout the sessions students replay tapes looking for tips on further stories, and time is spent in making up leading questions or suggesting ways of 'gently' probing in order to complete details. When a reasonably complete biography has been assembled, the students prepare a first rough draft - just to get the ideas down on paper. Proofreading is done by fellow students, with discussion of problem areas. A second rough draft is proofread by the teacher, with specific questions indicating need for further information from the tapes. The third rough draft - double spaced - is proofread for style, phrases, use of words, and titles. When the text is final, a good copy is typed and copied with one copy sent to the nursing home. Projects are marked on content and structure, but also some valuation is given to atttitude and responsibility during sessions. The '90-91 students created their own book for the nursing home; they chose the title, did the artwork, the layout and collated the pages, while parent volunteers did the typing and ran copies. The Xerox Company of Canada reproduced the photographs.

STEP FIVE

Then follows a re-read of the poem, 'The Thrills of the Years' (see step one), and some attempt is made to determine if a new understanding has developed. The students then try to write their own poem, about their partner, about growing old, or any other significant element arising from the project.

STEP SIX

Other projects that could be undertaken include planning a city to accommodate a positive mix of the elderly and the young, myth-making in advertising about the elderly, and attitudes towards the elderly in nursing homes and in education. Several critical issues also arise: mandatory retirement age, accessing the knowledge and skills of such a large part of the population if they are removed from society, and attitudes towards the elderly in other cultures, i.e., Indian, Inuit, Chinese, and European.

EVALUATION

Both projects provide an emotional and intellectual stretch for A.C. students. In The Odyssey writing project, the students are inspired by the writing of a great creative master. They become more aware of the historical perspective in literature and its impact on their lives and culture. They gain an understanding of story-telling based on fact as well as an appreciation of the oral traditon, its power and ultimate transformation into the written word. On the other hand the Nursing home project introduces the students first hand to storytelling which works from oral traditon and historic context creating a feeling of continuance. The students have hands-on experiences of the transformation from oral to written forms. They also have the opportunity to utilize a whole range of interpersonal skills as well as the creative writing techniques. As a result of this project, personal bonding and lasting friendships are formed with the elderly. A byproduct is the students' reflections on the position of the elderly in our society.

BIBLIOGRAPHY

THE ODYSSEY OF HOMER trans. R. Lattimore, New York: Harper and Row, 1965.

THE ILIAD OF HOMER trans. R. Lattimore, Chicago: U. of Chicago Press, 1951.

THE ODYSSEY, Three part film, available through Media Services, EPSB.

THE SEARCH FOR ULYSSES, film available through Media services, EPSB.

LES VIEUX, from record Jacque Brel: Alive and Well and Living in Paris.

'Miss Brill', in STORY AND STRUCTURE, complied by L. Perrine, Toronto: Harcourt Brace and World, Inc. 1959, p.357.

'Thrill of the Years', aka 'Look Closer' (Anonymous), 'When I'm Sixty-Four' (John Lennon), 'Hello In There' (John Prine) , The Elderly, Toronto: OISE, n.d.

'A Matter of Care', MacLean's Magazine, October, 1986.

Teaching the Scientifically Talented

G. Harold Poelzer

We are living in a world in which the survival of a culture is depending more and more upon its level of development in science and technology: economic growth depends on continuous innovation in science and technology. Our culture has changed from a predominantly agricultural base to one that employs only 2% of the population in agriculture. It is predicted that 90% of occupations will be in the service industry by the end of this century. Service industries depend on communications which in turn depend on technology and science. Technological and scientific data is estimated to double every 8 to 10 years. A severe shortage of engineers is forecast for the next decade and the demand for scientists and technologists is increasing.

A number of national studies in the United States revealed that students shy away from math and science. They also showed that the performance of students in math and science was dismally low when compared with students of other nations. These studies recommended a number of changes in school curriculum including an increase in the number of science courses required for a high school diploma. The National Commission on Excellence in Education (1983) recommended that the

science curriculum (a) be conceptually based, (b) emphasize inquiry, (c) apply science to everyday events, and (d) look at implications of science and technology to society and the environment. It also recommended that courses be designed for both the college bound and non-college bound student.

Some states have responded to the recommendations of the studies by establishing specialized schools for math and science.

A number of studies have been launched to determine what salient attributes eminent scientists possess as judged by achievements, professors, colleagues, and other notables in the field. The studies attempt to determine to what extent these attributes were also present in these eminent scientists when they were children. The purpose of the studies is to determine the necessary and sufficient conditions for the development of scientists. Several caveats are in order: testimonials regarding memories of attributes as children are subject to distortion; it is not known to what extent possession of these attributes as children results in careers in science, or to what extent the environment brings about the appearance of these attributes or affects their development. Longitudinal studies are required to answer such queries. Notwithstanding the caveats, it is not unreasonable that the appearance of extraordinariness in attributes like those of a scientist are a necessary condition for a later career in science. Further, researchers have found support for the idea that the disposition toward scientific endeavors appears early in life, is not learned, and affects how the child interacts with the environment.

The lists of attributes that characterize eminent scientists are characteristic of the categories in the instruments used. A number of attributes, however, are common among the lists: preference for the

theoretical and the abstract, preference for asymmetry, openness to experience, flexibility , spontaneity, positive self-concept, independence, emotional stability, tolerance, introversion, persistence, personal drive, questing, creativity.

Many of these attributes may be recognized in the child's interest in science phenomena, involvement in science projects, task commitment, advanced science vocabulary, curiosity in how things work, advanced reading and mathematical skills, above average IQ, and love of collecting.

Brandwein (1975) suggested that potential in science required at least a modest IQ (105 - 115) plus creativity. Brandwein viewed three factors that must interact in order for success in science: genetic factor, predisposing factor, and activating factor. The genetic factor refers to a minimum level of intelligence, the predisposing factor to persistence and questing, and the activating factor to the environmental opportunities for advanced work in science and contact with an inspirational teacher.

In order to teach a discipline one must understand its structure. Disciplines differ in their content, practitioners, methods, and outcomes. When the National Commission on Excellence in Education study recommended a science curriculum that was conceptually based and made use of the inquiry process, it was reflecting the structure of science. Science consists of a substantive structure and a syntactical structure. The substantive structure consists of the legacy of science: theories, principles, generalizations, concepts, and their interrelationships. The substantive structure guides the work of researchers in the field: it points to gaps in the knowledge or anomalies in the data and it suggests the appropriate evidence against which the data may be verified. The syntactical structure consists of heuristics and methods of inquiry

characteristic of a particular scientific field of study. It states the kind of evidence that is accepted by this discipline for the verification of scientific phenomena.

Two kinds of inquiry characterize science: stable inquiry and fluid inquiry. Stable inquiry refers to the major part of scientific research: increasing precision of physical constants, analyzing anomalies that appear in data, duplicating the studies of other scientists, and other endeavors that increase the scientific knowledge incrementally. Stable inquiry accepts the substantive structure as authoritative; all findings are measured against it. Fluid inquiry, on the other hand, refers to research endeavors that result in profound changes in the substantive structure of science, such as Einstein's Theory of Special Relativity. Such changes occur relatively infrequently.

Scientific disciplines often over-lap as evidenced by disciplines such as biophysics, physical-chemistry and the like. Indeed many principles, such as the conservation of energy, are common to all physical and life sciences. Even the essential elements of scientific inquiry are common: evidence to verify knowledge, inductive and deductive reasoning to connect evidence with data, hypotheses and theories to make sense out of the world, open mind to avoid bias and dogmatism.

Scientific disciplines differ in content, in the kinds of evidence that are used to verify knowledge, and in the methods of inquiry employed by their practitioners. In fact, the methods of inquiry vary even within any given discipline. There is no such thing as "the scientific method" in terms of a set of prescribed steps that is universally followed by scientists engaged in scientific inquiry.

Scientists interact with the culture in the following ways: what the culture deems important specifies the areas of scientific research,

scientists communicate the results of their research to the community at large, and scientist share their expertise with members of the community in issues that affect the life of the community.

A curriculum, in a broad sense, is a planned learning experience. It specifies what is to be learned; where, when, and how the learning is to occur; the learning environment; and the outcome of the learning.

A curriculum can be subdivided into four components: general education (basics), specialized (gifted), covert (affective), and non-school (community). The combination of the last three components is referred to as a differentiated curriculum. A differentiated curriculum for the scientifically talented consists of learning experiences that reflect their characteristics. Because the scientifically talented learn rapidly, prefer complex and abstract phenomena, see relationships among concepts readily, integrate material easily, enjoy being challenged, and so on, the appropriate curriculum is fast paced, abstract, complex, involves integration of concepts and, in general, operates at a level that keeps the scientifically talented working at the margins of their abilities.

The National/State Leadership Training Institute developed guidelines for a curriculum for gifted children in general; the National Education Association and the National Science Teachers Association developed guidelines for a differentiated curriculum for the scientifically talented. The differentiated science curriculum advocates depth of learning, integration of science disciplines, keeping up to date with developments in science, student involvement with science materials, increasing application of mathematics, use of community resources, influences of science on society, a conceptually based curriculum, and continuity from elementary school to college.

The continuity in a differentiated curriculum from early childhood to high school for the scientifically talented is achieved through the use of conceptual schemes, instructional objectives, and behavioral objectives. The conceptual schemes are broad generalizations, principles, and concepts that are relevant and applicable throughout the entire curriculum (e.g. energy is conserved). The instructional objective expresses a general learning outcome (e.g. Understands that energy is conserved when heat is transferred). The behavioral objective is a specific learning outcome that represents achievement of the instructional objective (e.g. uses conservation of energy to explain melting). The instructional and behavioral objectives prescribe tasks that increase in complexity, abstractness, and quantitativeness; and thus, require higher and higher levels of cognitive processing as education proceeds from early childhood through high school.

The tasks prescribed in the curriculum must take into account the cognitive and emotional levels of development. In early childhood the cognitive level of development is at concrete operations, and the emotional level of development is at either initiative versus guilt or industry versus inferiority crises experiences. The child must physically manipulate his or her environment in order to develop mental representations of phenomena (cognitive development) and must also be encouraged to explore many areas in science (initiative vs guilt) or to complete tasks (industry vs inferiority).

In elementary, cognitive development is at concrete operations or formal operations; emotional development at industry versus inferiority crisis. Formal operations enables the child to deal with hypothetical situations and to perform mental experiments. Thus, elementary is the time to encourage experimentation and research, as well as task commitment.

Junior high is characterized by formal operations in cognitive development, and identity versus role confusion in emotional development. Cognitive tasks become more quantitative (mathematical expressions of physical relationships). The favorable resolution of the identity versus role confusion crisis depends on a preponderance of success with experiences that delineate ones personal characteristics. Field trips, guest speakers, and other experiences that encourage the student to clarify his or her values, attitudes, skills, and abilities; and to assess these attributes with attributes required for success in various careers are appropriate learning experiences at the junior high level.

High school students are functioning at the cognitive level of formal operations and at the emotional level of identity versus role confusion, however, they are further along in their development than junior high students. Cognitive abilities of scientifically talented high school students are sufficiently advanced that the solicitation of mentors outside the school environment is in order. Mentors meet the needs of these students in two important ways: they provide expertise and they serve as role models. Thus the student is able to satisfy not only his or her intellectual needs, but also his or her identity needs.

Throughout the entire schooling period, early childhood through high school, the learning experiences of students should reflect the application of principles of learning from the theoretical frameworks of Behavioral, Social Cognitive, and Cognitive psychology and from the findings of the research based on these frameworks. Learning is enhanced by the application of principles and concepts such as reinforcement, role modeling, information processing, attribution theory, transfer of learning, schemata and the like. Research has identified the the following teaching strategies as effective under particular conditions: individual study, group work, lecture, tutorials, computer assisted instruction, and mastery learning.

Research Developments in Gifted Education

Michael C. Pyryt

Overview

The purpose of this paper is to examine research developments in gifted education from two perspectives: the eminence and cognitive science approaches. These approaches are viewed as competing paradigms with differing implications regarding priorities in gifted education. After briefly describing each paradigm and the contribution of each paradigm to understanding the nature of giftedness, I will discuss the implications of adopting either paradigm for gifted education. I propose that combining features of both paradigms is desirable for gifted education.

Eminence Paradigm

Most conceptions of giftedness (Sternberg & Davidson, 1986) and models of gifted education (Renzulli, 1986) can be characterized as taking the eminence approach to giftedness. This approach hopes to determine the qualities of an individual, educational experiences, and socio-cultural conditions that enable an individual to make an important contribution to a discipline. Various conceptions of giftedness may differ regarding the special qualities that are needed to achieve eminence. One familiar conception is Renzulli's (1978) Three-Ring conception specifying the interaction of above-average ability, task commitment and creativity. Personally, I (Pyryt, in-press) prefer the triad of intimacy, passion, and commitment as descriptors of potential productivity. Some theorists (Stanley, 1979) focus on the acquisition of specific skills in a domain such as mathematics. Others (Tannenbaum, 1986) focus on chance factors in addition to cognitive and affective factors.

Specialists in gifted education also differ regarding preferred approaches for facilitating talent. The revolving door identification model (Renzulli & Reis, 1986) stresses the opportunity for students to become producers of knowledge through independent investigation of real world problems. The smorgasbord of accelerative opportunities model pioneered by Stanley (1977) focuses on content acquisition and early career entrance as the primary vehicles for future success.

Some generalizations from the eminence approach include the following:

1. Eminence is a multi-faceted phenomenon.
2. Eminence is Domain-Specific.
3. Productivity is a cyclical phenomenon.
4. The interaction of cognitive, affective, educational, and socio-cultural is dynamic.
5. Recognition of giftedness is culture-bound.

Cognitive Science Paradigm

The Cognitive Science paradigm tries to incorporate the lessons from such fields as cognitive psychology and artificial intelligence to determine the nature of expertise. From this paradigm, we learn that identified gifted students act more like experts than like novices (Shore & Dover, 1987). They are more able to successfully use the information processing components that are helpful in solving problems on standardized tests (Sternberg, 1977). Theorists from this paradigm often differ in their use of terminology in describing cognitive processes (Alexander, Schallert, & Hare, 1991).

Some generalizations from the cognitive science approach include the following:

1. Gifted individuals process information efficiently.
2. Effective use of cognitive processes is dependent upon domain knowledge.
3. Gifted individuals have greater capacity for knowledge acquisition and more efficient knowledge acquisition strategies.
4. Gifted individuals automatize information and strategies.
5. Gifted individuals use information processing processes spontaneously.
6. Gifted individuals regulate their learning.

Implications for Gifted Education

From the eminence paradigm, the challenge is to find the select few who have the "right stuff" and to provide them with the proper environmental conditions in order to develop their potential. This approach has the advantage of encouraging high-level achievement. Longitudinal research designs can be employed to test the validity of various models of eminence, provided that these models are properly specified (Pyryt, 1990). One disadvantage of the eminence approach is that it is often perceived as elitist.

From the cognitive science paradigm, the challenge is to identify the necessary information-processing skills to solve and/or generate a variety of problems. To the extent that such skills are teachable, it is possible to make all individuals more competent. The cognitive science approach can be perceived as lessening the need for special programs for the gifted.

I believe that it is important to teach things such as critical and creative thinking to all students to make them more effective as individuals. It is also important to recognize and encourage those students with demonstrated talents to achieve their maximum potential. If all students can benefit from an educational approach, all students should be identified and given appropriate instruction. If the Curriculum is truly differentiated so that only students with prerequisite skills would benefit, then those students should be identified and given appropriate instruction. The challenge is to validate the selection criteria to ensure that the stated prerequisites are necessary for success in the program.

References

Alexander, P. A., Schallert, D. L., & Hare, V. C. (1991). Coming to terms: How researchers in learning and literacy talk about knowledge. *Review of Educational Research, 61,* 315-344.

Pyryt, M. C. (1990, November). *Formalizing theories in gifted education with mathematical models.* Paper presented at the meeting of the National Association for Gifted Children, Little Rock, AR.

Pyryt, M. C. (in-press). The three faces of creativity revisited: Intimacy, passion, and commitment. *Gifted International.*

Renzulli, J. S. (1978). What makes giftedness? Re-examining a definition. *Phi Delta Kappan, 60,* 180-184.

Renzulli, J. S. (Ed.). (1986). *Systems and models for developing programs for the gifted and talented.* Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S., & Reis, S. M. (1986). The enrichment triad/revolving door model: A schoolwide plan for the development of creative productivity. In J. S. Renzulli (Ed.), *Systems and models for developing programs for the gifted and talented* (pp. 217-266). Mansfield Center, CT: Creative Learning Press.

Shore, B. M., & Dover, A. (1987). Metacognition, intelligence, and giftedness. *Gifted Child Quarterly, 31,* 37-39.

Stanley, J. C. (1977). Rationale of the Study of Mathematically Precocious Youth (SMPY) during its first five years of promoting educational acceleration. In J. C. Stanley, W. C. George & C. H. Solano (Eds.), *The gifted and the creative: A fifty-year perspective* (pp. 75-112). Baltimore: The Johns Hopkins University Press.

Stanley, J. C. (1979). The study and facilitation of talent for mathematics. In A. H. Passow (Ed.), *The gifted and talented: Their education and development* (pp. 169-185). Chicago: National Society for the Study of Education.

Sternberg, R. J. (1977). *Intelligence, information processing and analogical reasoning: The componential analysis of human abilities.* Hillside, NJ: Erlbaum.

Sternberg, R. J., & Davidson, J. E. (Eds.). (1986). *Conceptions of giftedness.* New York: Cambridge University Press.

Tannenbaum, A. J. (1986). Giftedness: A psychosocial perspective. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 21-52). New York: Cambridge University Press.

Intuition and Giftedness

Deborah Skaret

The purpose of this presentation is to stimulate thinking about intuition and challenge educators of gifted children to provide a learning environment which facilitates greater awareness of intuition and provides support for its development. Three areas will be focused upon: (1) What is intuition? (2) Cultural conditioning and intuition, and (3) Intuition and gifted education.

What is Intuition?

Intuition is a phenomenon we all know through personal experience. The word "intuition" has been used to describe a broad range of experiences which involve knowing or a sense of knowing, seemingly obtained without the conscious use of reasoning. Experiences which have been called intuitive range from the commonplace to the extraordinary. Examples of experiences called intuitive include unexplainable gut feelings or hunches about a situation, sensing "vibes", knowing with certainty what will happen or what the solution is to a problem in the absence of sufficient information, extrasensory perception, the sudden "aha" experience in creative discovery, and mystical or religious experience in which identity goes beyond customary limits.

With "intuition" covering such a broad range of experiences it is not surprising that theoretical discussion of intuition is diverse. Theories have been developed which conceptualize intuition as a special faculty of mind capable of attaining special knowledge outside the realm of the intellect. In contrast, theories have also been developed which posit that intuition as a faculty of knowing does not exist and that which is considered intuition is merely rapid inference.

A few theories have been developed which adopt a multilevel view of intuition. These theories conceptualize intuition in a way which encompasses everyday experiences labelled intuitive to intuitive experiences which occur less frequently and have a spiritual quality. Carl Jung (1949), a Swiss psychiatrist, developed a theory of personality in which he adopted a multilevel view of intuition. Jung considered intuition, sensing, thinking, and feeling as basic psychological functions present in all individuals to varying degrees. Jung conceptualized the functions of intuition and sensation as ways to perceive information, and the functions of thinking and feeling as ways to judge information. Jung theorized the existence of three levels of consciousness: the personal

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conscious, personal unconscious, and the collective unconscious. According to Jung's theory intuition is a way to perceive information through unconscious processes. Information at the personal and collective unconscious levels is accessible through intuition. Through intuition, conclusions may be arrived at without ability to explain how or why the conclusion was made rationally.

Cultural Conditioning and Intuition

A society imparts to its members a particular worldview of what constitutes reality, what knowledge is important and what are legitimate ways of perceiving, thinking, valuing and acting. Part of the worldview modern Western society imparts to its members is that intuitive ways of knowing are inferior to rational / logical thinking. This worldview has led to intuition being mistrusted, denigrated, and ignored by society at large, by individuals and by the educational system. Samples (1987) described how young children have many ways of knowing which are gradually reduced because cultural conditioning teaches children that certain ways of knowing and perceiving are culturally acceptable while others are not. Cultural conditioning has taught us to dishonour intuitive ways of knowing. To consider intuition a legitimate way of knowing challenges long standing cultural beliefs.

Intuition and Gifted Education

Within the past decade the need for the acknowledgement, awareness, training, and utilization of intuition has been documented by writers from a variety of disciplines including education (Clark, 1988; Noddings & Shore, 1984). The importance of intuition in creative breakthroughs has been reported in the works of creative individuals throughout history (Clark, 1988; Rockenstein, 1985; Sperling, 1982). The acknowledgement of the important role intuition plays in the creative process has created an interest in developing the use of intuition by gifted students (Clark, 1986; Rockenstein, 1985).

The work of Clark (1988) and Rockenstein (1985) provide a framework for understanding intuition and ways intuitive development can be encouraged when working with gifted students. Clark developed a holistic integrative model of gifted education based upon a synthesis of theories of creativity and research on brain functioning housed within Jung's model of psychological functioning. Clark's integrative model stresses the importance of developing and utilizing all four psychological functions of thinking, feeling, sensing and intuition within all subject areas to ensure powerful learning experiences. Clark described intuition as "the least known and yet the most powerful area of human brain function... the area that promises the most continuance and fulfillment of humankind" (Clark, 1988, p. 400) and "a highly synthetic and dynamic process that integrates all other brain functions" (p. 404).

Rockenstein (1985) defined the "intuitive domain" as "an

open channel to universal sources of knowledge and wisdom that transcends the boundaries of time, space, the senses, and the logical / rational mind" (p. 4). Based upon literature relevant to intuition, documentation by creative individuals, and personal experiences Rockenstein developed a taxonomy of four major educational objectives to facilitate the intuitive abilities of gifted students. The first objective addresses awareness of the intuitive domain. It involves teacher and student exploration of terminology related to the intuitive domain, investigation of accounts of intuitive experiences of famous people, discussion of personal intuitive experiences, and consideration of possible ways intuition can play a useful role in one's life. The second objective addresses comprehension of the role intuition plays in the creative process. This objective involves studying how intuition is involved during the stages of creative thinking as conceptualized by Wallas. The third objective addresses development of intuitive abilities through engaging students directly in techniques which have been found to enhance intuitive ways of knowing. Techniques Rockenstein outlined include relaxation training, meditation, creative imaging, and dream exploration. The fourth objective is development of a personalized plan for continued learning in the intuitive domain.

Rockenstein's taxonomy provides a useful model on how awareness and development of intuition may be approached within gifted education. Rockenstein warned that ethical consideration should be made before teaching in the intuitive domain. The ethical considerations Rockenstein presented focused upon: (a) the possibility of inadequate teacher preparation for instructing students in techniques designed to enhance intuitive ways of knowing, (b) the possibility that creative imagery may induce altered states of consciousness which students may be developmentally unprepared for or find disturbing, and (c) the possibility that exploration of intuition may be opposed by community members. With these ethical considerations in mind I believe it is important that instruction in the intuitive domain presently focus on the first two objectives of Rockenstein's taxonomy. In addition teachers should discuss with students how certain states of consciousness may enhance intuitive ways of knowing and that techniques, such as meditation, have been developed over the centuries to induce altered states of consciousness. Discussion of other techniques found to enhance intuitive ways of knowing should also be discussed with students. Instructional focus on increasing awareness of the intuitive domain, comprehension of the role of intuition in the creative process, and discussion of techniques found to enhance intuitive ways of knowing will help develop teacher, student, and parent awareness of intuition and hopefully foster a more receptive attitude to further exploration of intuitive ways of knowing.

I have focused on discussing what intuition is, how cultural conditioning has inhibited acknowledgement and development of intuition, and ways of increasing gifted students awareness of intuition and supporting their intuitive development. I hope

this presentation has stimulated interest in finding out more about intuition and how educators of gifted students can facilitate awareness of intuition and provide support for intuitive development.

References

Clark, B. (1988). Growing up gifted - Developing the potential of children at home and at school. Toronto: Merrill Publishing Company.

Jung, C. (1949). Psychological types: The psychology of individuation. London: Routledge & Kegan Paul Ltd.

Noddings, N. & Shore, P. (1984). Awakening the inner eye: Intuition in education. New York: Teachers College Press.

Rockenstein, Z. (1985). A taxonomy of educational objectives for the intuitive domain (Doctoral dissertation, University of Georgia). Dissertation Abstracts International (University Microfilms No. 8514035)

Samples, B. (1987). Openmind / wholemind - Parenting and teaching tomorrow's children today. Rolling Hills Estates, CA: Jalmar Press.

Sperling, D. (1982). Intuition and science. New Realities, 4(5), 16-22.

Sex Role Orientation and Self-Concept In Gifted Adolescents

Josie Tong

SUMMARY

Adolescence is a period from puberty to adulthood characterized by rapid physical, emotional, and intellectual changes. Self-concept appears to be an area which researchers have focused upon in attempts to understand adolescence. Investigations of adolescent self-concept development have been extensive. A literature search of Psychological Abstracts since 1974 resulted in over 2,000 studies done on the topic. Compared to this impressive amount of literature on adolescent self-concept in general, little research has been done on the self-concept of gifted adolescents, and even fewer on sex differences in self-concept among the gifted.

The present investigation examined the sex role orientation, the self-concept, and the relationship between self-concept and sex role in a sample of 39 (22 males, 17 females) gifted high school students. A control group of 39 students (22 males, 17 females) in the regular program was included for comparison purposes. Two instruments were used, the Bem Sex Role Inventory, and the Piers-Harris Self-Concept Scale. The purpose of the study was to examine the following questions:

1. What are the sex role orientations of gifted adolescents in comparison to their non-gifted peers?

2. What are the levels of self-concept in gifted adolescents in comparison to their non-gifted peers?

3. Is there a relationship between self-concept and sex role orientation? Is this relationship similar between gifted adolescents and their non-gifted peers?

These questions were investigated relative to comparisons with male and female students.

Regarding question 1, no significant difference in sex role orientation between students in the gifted and regular program, nor between female and male students, were found.

Regarding question 3, the results indicated that there was no significant difference in the general self-concept scores between students in the gifted and regular programs, nor between total male and female students. However, when specific areas of the self-concept measure were analyzed, females were found to have a significantly higher level of anxiety than the males, and regular program students were found to be significantly happier and more satisfied with life than the students in the gifted program. As well, females have fewer problems with behavior than males.

Regarding question 3, a significant relationship between sex role orientation and the self-concept was found for total students. Androgynous individuals were found to score the highest self-concept, followed by masculine individuals, then by feminine individuals, with the undifferentiated scoring the lowest self-concept. This relationship did not differ significantly between regular program students and gifted program students, nor between female and male students.

The results were discussed in relation to the three questions which this investigation sought to answer. Implications for future research were suggested.

Strategies Developed for Use With Elementary Gifted/Learning Disabled Students in a Self-Contained Classroom

Janet Wees

This presentation will deal with the strategies developed in a self-contained classroom for gifted students with learning disabilities. It will track the development of the program over the past three years from inception to present day.

The topic will begin with a background of the assessments and placements of the students involved, the educational and experiential background of the teacher, and the application and support of research in this area.

Strategies which were developed and tried, along with their successes and failures will comprise the bulk of the presentation. Available resources both commercially made and teacher-made will be shared with the audience. Publishers' names and addresses will be obtainable.

Evaluations of the students' progress will then be discussed with the help of graphs and parent questionnaires. Discussion of what is still needed in this area of education will be examined, keeping in mind the relationship between what was learned in the classroom and what is espoused in the literature. There should hopefully be time at the end for questions from the audience.

Printed hand-outs of characteristics of Gifted/Learning Disabled students as gleaned from the research and the teacher's experience will be available for the audience. A comprehensive list of strategies which were used and tried in the classroom, and which are supported by the research will also be accessible for the members of the audience.

We Believe in Honoring Human Potential

Marie Whelan

Philosophy	Gifted learners are totally integrated into a 'community of learners' where each child is honored and challenged to develop the best within themselves.
Organization	Each 'community' is an enriched learning environment enabling the teacher to facilitate a program which meets the needs of gifted learners. Students are surrounded by a wide variety of resources and opportunities which stimulate them intellectually, creatively and socially. Focusing on 'student directed learning', each community is organized to accommodate independent choices, small group work and total group involvement.
Catalyst Teacher	A catalyst teacher for gifted learners is a resource teacher to each community providing assistance to each teacher in the selection of resources, projects and modeling for student directed learning.
Student Mentorship	Students have the opportunity to mentor and be mentored in a variety of situations over a seven year plan. Mentorship programs are cross graded inviting students to interact with learners from other communities. We are developing an adult-student mentorship program involving our parent community.
Cooperative Team Building	A cooperative planning model is built into the instructional day providing teachers the opportunity to program plan for all learners with the catalyst teacher, librarian and resource teacher
Staff Development	The professional staff are involved in a weekly staff development program which enables teachers to continually develop their skills and remain current on research.
Parent Development	Parent development evenings are coordinated by the professional staff to help build in a support system which links with the schools' philosophy on gifted education. Parents are given the opportunity to suggest workshops which will enable them to be actively involved in their child's learning.
Life Long Learning	As a community we recognize that learning is a life long process where we will continue to evolve and develop in our appreciation of honoring the human potential of all learners.

Writing to Publish: Breaking the Barrier

Carolyn Yewchuk

I have served as editor of AGATE, the journal of the Gifted and Talented Education Council of the Alberta Teachers' Association for the past five years, and on the basis of that experience would like to offer some observations and suggestions regarding writing for journals. I would specifically like to focus on the process involved in getting an article into print, and in so doing, encourage you to consider writing for AGATE.

To begin with, there must be an idea, some message that you would like to communicate to others. We tend to be modest about the things we do, the programs we have, and the innovative practices we have developed. We tend to think that others, particularly those far away from us, are much more productive than we are and have better "answers" to the problems we face. We tend to think that others are experts who can help solve problems for us.

Part of this mystique about the expert is associated with the impact of the printed word. Ideas which appear in print have a permanency which invites reflection and consideration. The mystique works for us, too, however. When we get our ideas into print we become experts in the eyes of others.

We all have ideas which we can share. Usually we feel quite comfortable talking about them; however, the thought of putting them into writing commonly raises a whole host of nagging self-doubts. Have I got anything important to say? What if the manuscript is rejected? What will the reviewers think of me? Do I

really consider myself an expert in this area? These self-doubts present a real psychological barrier to writing for publication. Fear of rejection or evaluation is a common impediment to writing for journals. It is difficult to put one's self up to academic scrutiny.

I would like to offer some suggestions for developing your ideas into an article suitable for publication and surmounting the psychological barriers which confront beginning (and experienced) authors.

First, select the journal in which you would like to publish. Look at copies of the journal, read through the articles and examine the instructions for authors to get a feel for what the journal publishes. For example, AGATE invites theoretical, descriptive and research articles on all aspects of the education of gifted and talented children. Consider, also, who subscribes to the journals, that is, who is likely to read the article you write. Again, using AGATE as an example, the majority of subscribers are classroom teachers. An article in AGATE reads differently than one which appears in, say, The Gifted Child Quarterly.

Second, note the technical requirements for submission. Factors such as length, number of copies, style of referencing, and so on, deal with the physical requirements for submitting an article. If the ideas you explore are the kernel of your message, then the technical aspects form the shell for housing that kernel.

Third, if you are not certain that your topic is suitable for a particular journal, check directly with the editor, whose name and address usually appear in the journal. I know that I am more than happy to talk to prospective authors about publishing in AGATE.

Fourth, expect to do some revisions. Only rarely does an article pass review without any changes. In some cases minor revisions are requested by reviewers and in others the rewriting is quite substantial. The purpose of reviewing manuscripts is to edit and clarify. Articles which are well reviewed are informative, clear and easy to read. The review process may be burdensome to authors but it is an effective way to get peer feedback. I try to ensure that the feedback is very specific with regard to the nature of the requested revisions.

Fifth, write as clearly and as simply as you can. From the first and/or second paragraph the main idea as well as how the paper is organized to develop that idea should be obvious. It is important to give sufficient detail to maintain interest but not so much that the main thrust of your message is lost.

Finally, remember that the editor wants to receive your article. Journals are published on a regular basis and that requires a steady stream of incoming submissions. A number of times over the past 5 years I have faced a publication deadline lacking sufficient articles and have had to make some frantic phone calls to try and fill the issue. In those situations I have been most grateful to the individuals who have submitted an article on very short notice, often at great inconvenience to themselves.

What topics can you write on for AGATE? Any topic that is relevant to the education of gifted and talented children in Alberta is suitable. Listed below are the topics which have appeared in Volumes 1 through 5 1987-1991. I would be pleased to include your article in a forthcoming volume.

AGATE publications Vol. 1-5, 1987-1991

BIOGRAPHY

Schmidt, W. H. O. (1988). William Stern: Pioneer in the psychology and education of gifted children. 2(1), 2-6.

BOOK REVIEWS

Brydges, Barbara (1990). Library Services of the Centre for Gifted Education. 4(2), 30-35.

Brydges, Barbara (1991). Recent books on gifted education. 5(2), 41-44.

CHARACTERISTICS OF GIFTED CHILDREN

Oviatt, Pat (1988). Attitudes of students in a Grade 10 honors/ international baccalaureate program. 2(1), 33-39.

Porath, Marion (1991). A developmental view of young gifted artists. 5(2), 12-19.

Shore, Bruce (1991). How do gifted children think differently? 5(2), 19-23.

Sternberg, Robert (1988). Three portraits of intellectual giftedness. 2(2), 26-32.

Vespi, Laurel (1988). The social and emotional characteristics of gifted children: The myth continues. 2(2), 14-19.

COUNSELLING

Kanchier, Carole (1988). Maximizing potential of gifted and talented students through career education. 2(2), 6-13.

Pullyblank, Harold (1988). The counselling needs of gifted children. 2(2), 20-25.

Shiner, Sandra M. (1987). Providing guidance for gifted students. 1(1), 31-39.

CREATIVITY

Clarke, Stanley C. T. (1987). Creativity. 1(2), 7-12.

Im, Seon-Ha (1989). Creativity: An eastern perspective. 3(2), 11-15.

Jobagy, Shelly (1990). Moral responsibility and the construction of a creative life: Implications for gifted education. 4(1), 21-24.

Norman, Charles & Wilson, Cheryl (1987). Incorporating creative activities into instruction. 1(2), 13-15.

Orieux, Jim (1987). Creativity: An elusive concept? 1(1), 22-26.

Pyryt, Michael (1991). Discovering your creative triggers. 5(2), 33-37.

Wilde, Warren D. (1989). Creative potential: The domain of the gifted? 3(2), 2-10.

CURRICULAR MATERIALS

Liu, Andy (Ed.) (1989). Mathematics for gifted students. 3(1), 1-105 (Whole issue).

Polette, Nancy (1987). Stretching minds with picture books. 1(1), 27-30.

Slavik, Holly (1991). National Film Board resources for developing curriculum for the gifted and talented. 5(2), 38-40.

Voegtlin, Lois (1988). Canadian literature for elementary academic challenge students: An annotated bibliography. 2(1), 20-23.

CURRICULUM DIFFERENTIATION

Gerling, Terrance (1988). Why differentiating the curriculum for gifted students is necessary. 2(1), 7-13.

Mielnichuk, June H. (1988). Differentiating curriculum to meet the needs of gifted learners. 2(1), 14-19.

Sullivan, Mary (1990). Interpreting giftedness. 4(2), 36-42.

Wilgosh, Lorraine (1987). Developing children's special talents. 1(2), 36-40.

IDENTIFICATION

Edmunds, Alan L. (1990). The use of school subject tests to identify and program for the gifted. 4(1), 2-7.

Ellis, Julie L. (1987). Selecting students for challenge programs in elementary schools. 1(1), 9-13.

INTERNATIONAL PERSPECTIVES

Choi, Don Hyung (1989). Education of scientifically gifted students in the Republic of Korea. 3(2), 16-23.

Freeman, Joan (1989). High ability: A European perspective. 3(2), 24-27.

Stewin, L. L. (1988). Gifted education: The Soviet experience. 2(2), 2-5.

PARENTAL ISSUES

Bodie, Carol (1987). Dealing with the parents and families of gifted children. 1(2), 25-28.

Lupart, Judy L. (1990). Parents and gifted education (PAGE). 4(2), 16-19.

PROGRAMMING

Blackwood-Malayko, Kim (1988). A challenge program for gifted high school students. 2(1), 24-28.

Delaney, Don (1990). Progressive acceleration--A common sense approach. 4(2), 20-24.

Harper, Georgean (1988). Mentors are magic. 2(2), 33-39.

Martin, Cindy Lee & Scanlon, Kathleen (1991). Junior high students conducting research. 5(2), 24-26.

Mielnichuk, June (1991). If gifted education is to continue. 5(2), 2-6.

Nyberg, Verner R. & Clarke, Stanley C. T. (1987). Politics of providing a program for the academically able. 1(1), 3-8.

Parke, Beverly N. (1990). Gifted students in regular classrooms. 4(2), 25-29.

Sullivan, Mary (1991). The role of cross-age groupings in accommodation of student differences. 5(2), 6-11.

PROGRAMS - DISTRICT

Burgess, Karen & Shreenan, Eunice (1987). Programming for the gifted in Grande Prairie. 1(1), 14-17.

Dvorack, Yarmilla (1988). Programming for the gifted in Calgary Catholic elementary and junior high schools. 2(1), 29-32.

Shields, Jan (1991). Academic and creative excellence: Grande Prairie Catholic School Districts' integration of its gifted programs. 5(2), 27-32.

RESEARCH QUESTIONNAIRES

Li, Anita K. F. (1990). "Bright Inspirations": A conference for gifted/talented girls. 4(1), 18-20.

Pyryt, Michael; Lupart, Judy & Josephson, Trevor (1991). Gifted Research and Education in Alberta: Analysis of a needs assessment questionnaire. 5(1), 19-25.

RURAL ISSUES

Campbell, John (1987). Gifted education in Northern Alberta: A rural perspective. 1(1), 18-21.

Lupaschuk, Doreen S. (1989). Gifted education in a rural setting. 3(2), 38-43.

TEACHERS OF GIFTED STUDENTS

Gerling, Terry (1991). Planning: Do teachers of the gifted do it differently? 5(1), 2-11.

Li, Anita K. F., & Bourque, Joanne (1987). Do gifted students' preferred learning styles match the teaching styles of their teachers? 1(2), 2-6.

Nash, Chris & Miller, Jack (1987). Teaching gifted students effectively in secondary school sciences. 1(2), 29-35.

THINKING SKILLS AND STRATEGIES

Andrews, Jac; Peat, David; Mulcahy, Robert; & Marfo, Kofi (1990). A cognitive strategies approach for developing social competence. 4(1), 25-33.

Millar, Garnet (1991). The power of questioning: An enabling strategy to enhance learning. 5(1), 26-38.

Pace, Sandra Falconer (1989). Thinking skills in the curriculum: Implications for the gifted and talented. 3(2), 28-37.

Peat, David; Mulcahy, Robert; Andrews, Jac; & Marfo, Kofi (1990). SPELT: A cognitive strategy-based instructional model. 4(1), 34-43.

Perkins, D. N. (1988). Myth and method in teaching thinking. 2(2), 40-45.

UNDERACHIEVEMENT

Brophy, Annabel (1987). Achievement motivation in gifted adolescents: A preliminary study. 1(1), 40-44.

Buga, Rod S. (1987). The underachieving gifted: Characteristics and concerns. 1(2), 21-24.

Christopher, James R. (1987). Programming for gifted achievers and underachievers. 1(2), 16-20.

Delisle, James & Berger, Sandra (1991). Underachieving gifted students. 5(1), 39-44.

Edmunds, Alan L. (1990). Giftedness and motivation. 4(2), 9-15.

Goldberg, Jack (1990). Gifted underachievement: A proposed solution to some persistent problems. 4(2), 2-8.

UNDERSERVED GIFTED

Bibby, Mary Ann (1991). Teachers' perspectives of giftedness in hearing impaired students. 5(1), 12-18.

McGuire, K. Lesley (1990). Identification of gifted learning disabled students. 4(1), 8-12.

Wees, Janet (1990). Gifted learning disabled and gifted underachievers: Can they benefit from the same kinds of programs? 4(1), 13-17.